RUBBER and PLASTICS WEEKLY

VOLUME 140 NO. 16 APRIL 22 1961 ONE SHILLING

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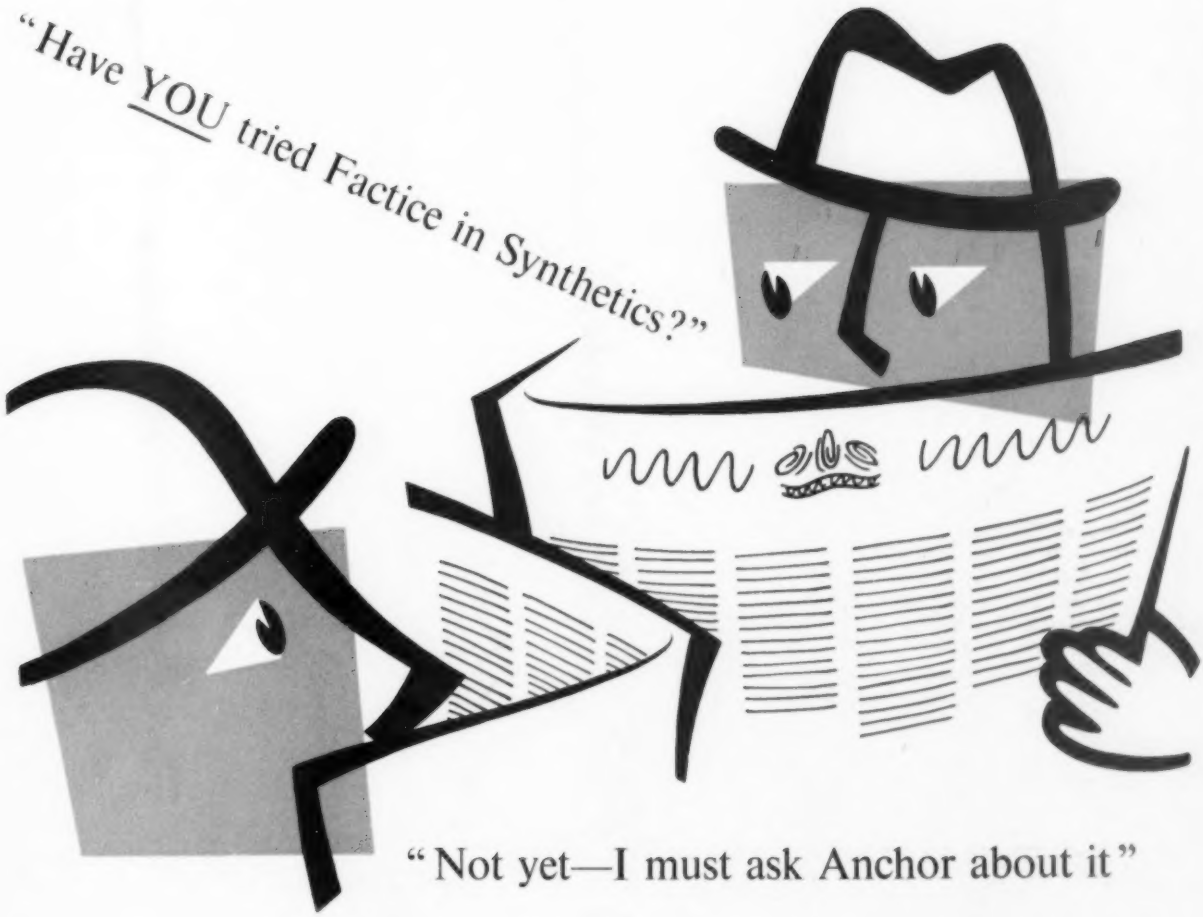

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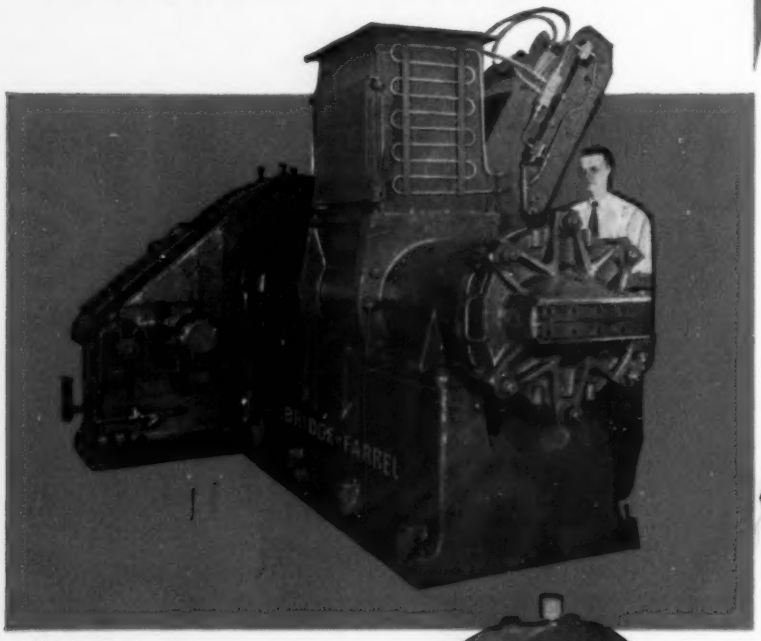

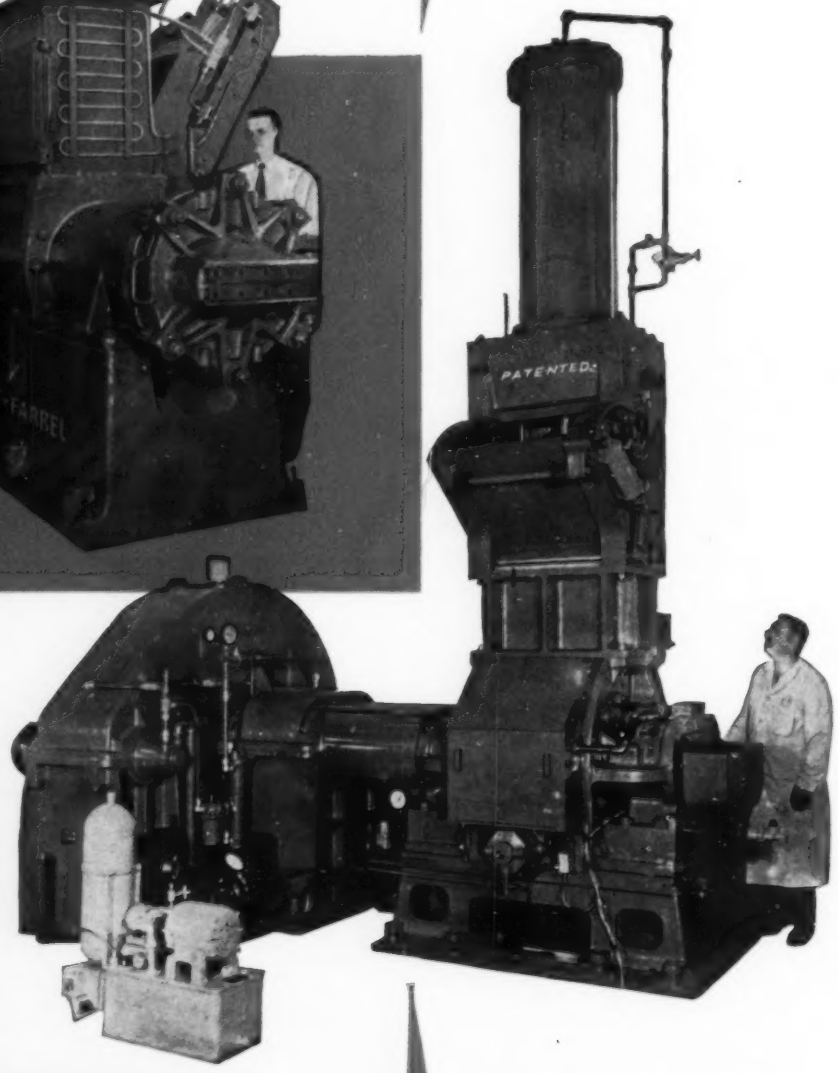

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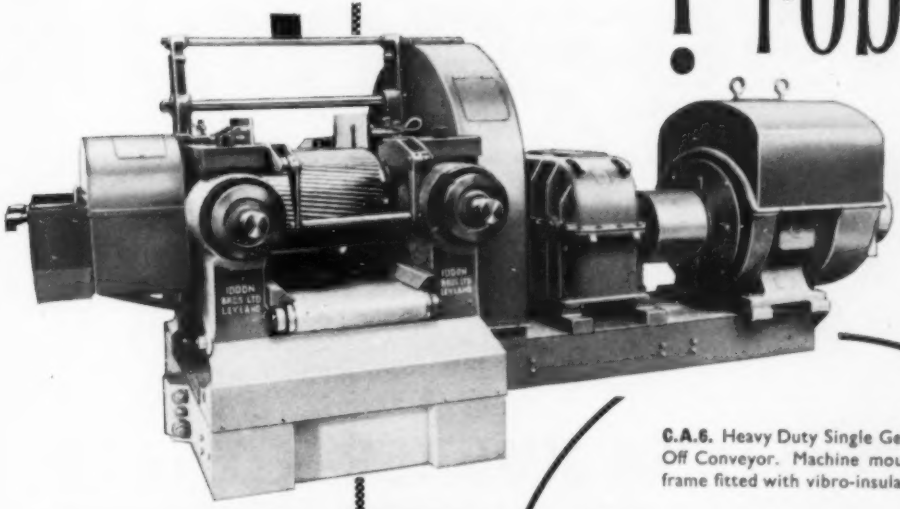

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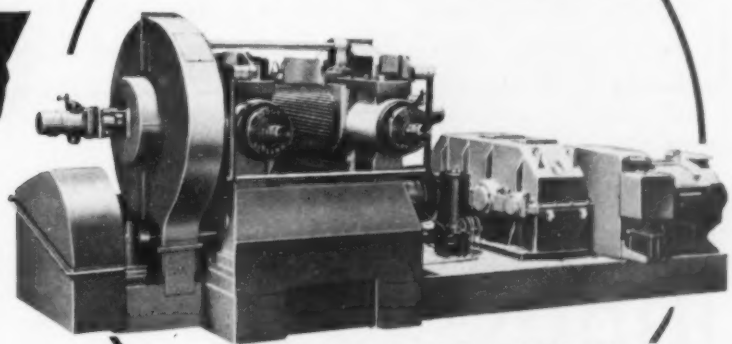

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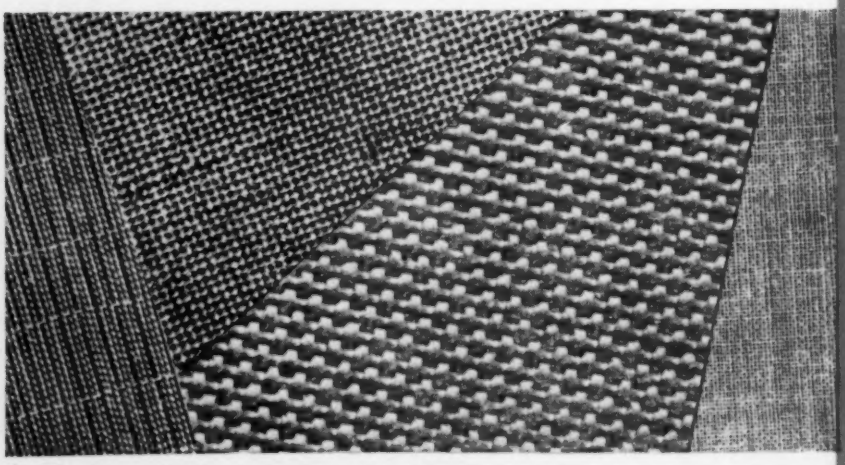

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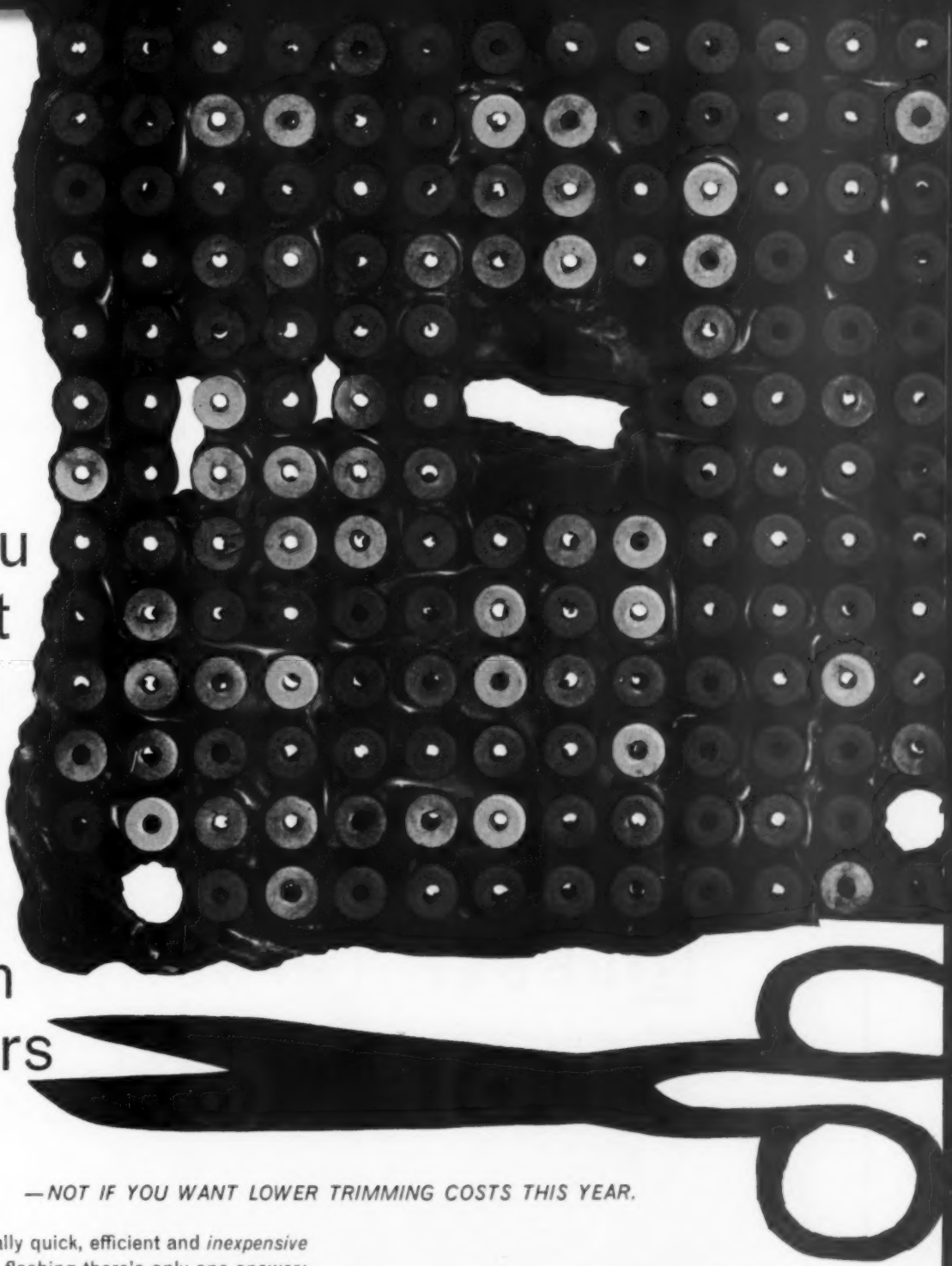

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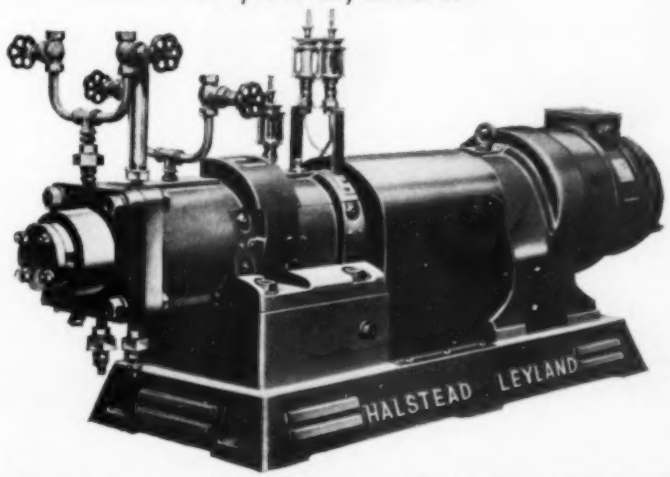

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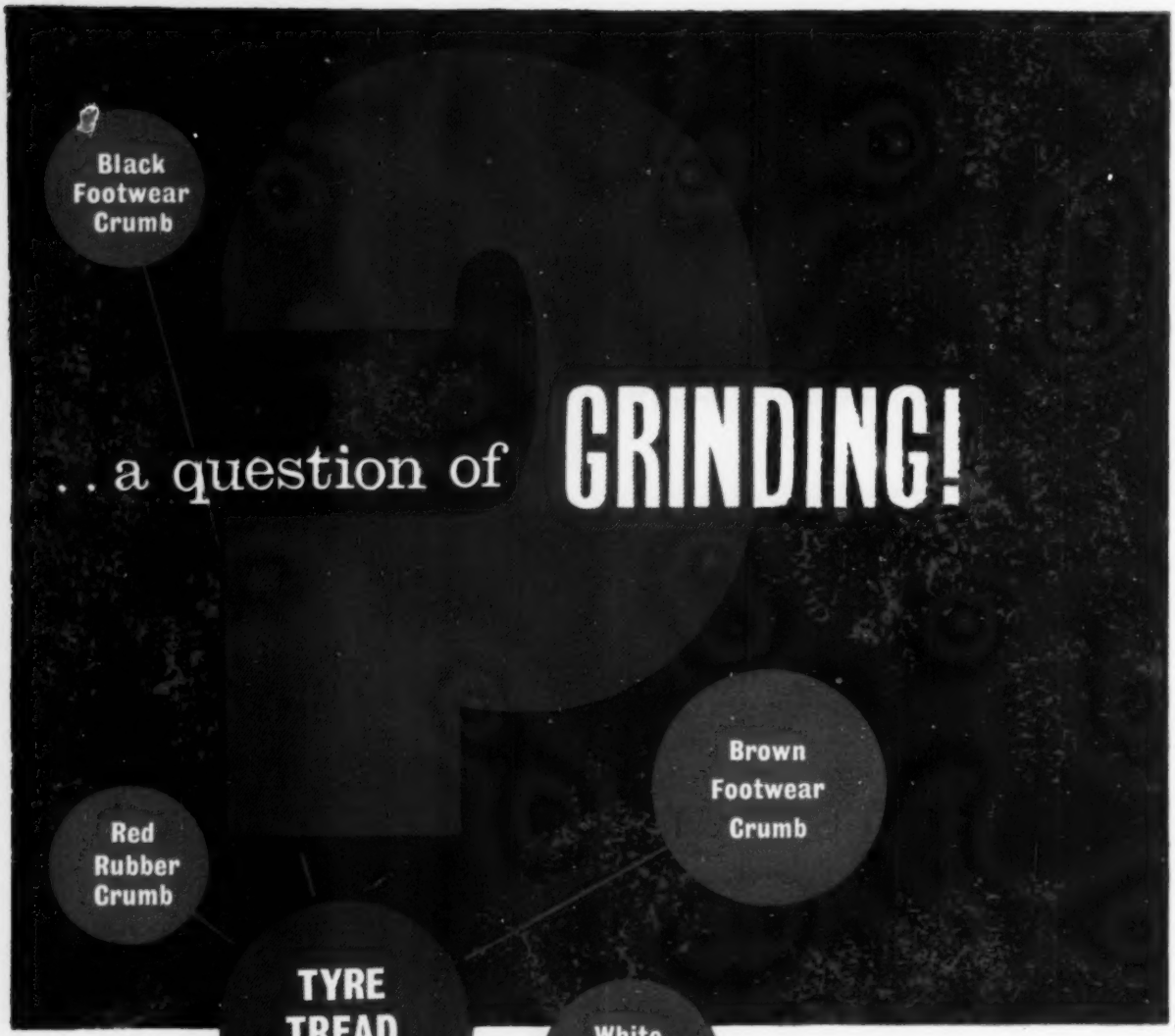

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RUBBER and PLASTICS WEEKLY

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Volume 140 *IN ITS 77th YEAR* **No. 16**

April 22 1961

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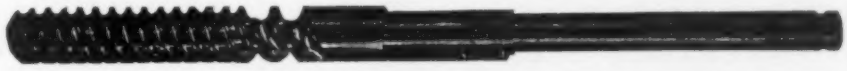

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NOTES of the WEEK

Budget Reactions

REACTIONS to the Budget in the rubber and plastics industry have shown some measure of disappointment in the Chancellor's proposals. While the upgrading of the surtax level has been welcomed as an 'incentive to the younger executive', there is no incentive for the manufacturer, who, on the contrary is to have his profits pared down again. The industry also cannot welcome the increased car licence duty. Articles in our transport issue (January 25) showed what an enormous market this field is for rubber and plastics. Although the effect of the increased tax will probably be small, the recent 'recession' was a reminder of the sensitivity of the car industry, and moves of this kind make the expansion of sales by component manufacturers more difficult. (A summary of the main Budget proposals affecting the rubber and plastics industry appears on page 606.)

Automation and the Payroll Tax

THE greatest innovation in the Budget is the Chancellor's proposal to levy a payroll tax if he considers it necessary. Attention has been focused on the very large firms, who, if such a measure was introduced would have to pay out considerable sums: I.C.I., for example, with 110,000 employees, would have to pay out £1.2m. Dunlop's bill would be £500,000. But the small to medium-sized firms, of which there are many in the polymer industry, would also have to pay relatively high sums without having the mechanization resources of the larger firms. There is a good deal, however, that such firms can do in raising the output per man, and it is very appropriate to consider one method this week : 'low cost automation'.

Small firms are limited in the amount of research that they can undertake, but most can carry out development work which does not tie up too much capital and which can yield a quick return. Low cost automation comes into this category. This has been defined as a 'replacement of muscular and mental effort by the use of simple pneumatic, electric, hydraulic and mechanical components in manufacturing and assembly operations'. Examples of the use of low cost automation were quoted by L. Landon Goodman, an industrial specialist of the Electrical Development Association, in an interesting paper delivered this week. In one case a girl operated a machine for placing nylon inserts into components. She was replaced by two vibratory bowl feeders and the work was carried out automatically. Later, 20 further machines were installed which were controlled by one operative. Another application Mr Goodman referred to was the vibratory feeding, by rubber-covered bowls, of glass flares to an electric lamp assembly machine.

An advantage of low cost automation is that it leads to an increase not only in productivity, but also in flexibility. It uses simple types of equipment (such as solenoids and photo-electric cells) which can be used again and again. They are, in fact, automative 'bricks' which can be built into existing plant and machinery, such as guillotines and mixers. Another advantage that it not so obvious is that it gives the company a gradual approach to mechanization—and much valuable experience of the subject when the time comes to re-equip.

Back to Nature

RESEARCH never stands still. While the rubber manufacturer in USA (and now in this country) is evaluating the characteristics of polyisoprene, work is going on to improve the polymer and to lower its cost. An important paper, delivered by a team of Firestone Tire and Rubber Co. chemists at an American Chemical Society meeting on Wednesday April 19, indicates some lines on which the research is developing. One approach consists of an intensive study of the natural rubber molecule, not so much at this stage for what it is, as for how it is produced.

Firestone, whose diene plant went on stream this month (*RPW*, April 8), has, in addition to its synthetic facilities, extensive plantations in Liberia. It is thus in an ideal position to facilitate the 'interchange of information' between natural and synthetic. The paper compares the polymer structures of natural polyisoprene rubbers produced commercially with those of rubbers obtained from wild trees. It shows that, with a few exceptions, all the rubbers have the same microstructure as *Hevea*. Many unrelated plants have an aqueous system for producing stereoregularity that generates polyisoprene of a high *cis*-1,4 content. This stereosynthesis cannot be duplicated simply in an aqueous medium in the laboratory. Man has learnt how to bounce as high as Nature, but not so elegantly. In fact, says Dr F. W. Staveley, Firestone's director of research : 'Though man boasts of producing synthetic natural rubber with the same stereoregularity as natural rubber, to do so he must create conditions quite different from nature's method. Man must avoid the presence of air or moisture in his polymerization process while nature, by an unknown process, produces these rubbers with a higher degree of similarity and in the presence of both moisture and air. (Attempts to duplicate this) . . . may open up entirely new fields of chemistry'.

NEWS *Briefs*

POLYMER IS NOT FOR SALE — BAYER KNOW-HOW FOR JAPAN?—BOMBAY PLANT FOR I.C.I.— ISRAEL FORMALIN PRODUCTION—EXPANSION IN KERALA

●**United States** — A new nine-mile circular track being built in Texas will be used for the testing of tyres by the Armstrong Rubber Co., B. F. Goodrich Tire Co. and Sears, Roebuck and Co. The track will be operated by a new company, Automotive Proving Grounds Inc., who will lease it from Goodrich by whom it is being built. Tyres will be tested on a round-the-clock basis and the track will, it is estimated, be in use for more than 15 million vehicle miles a year.

●**Japan** — Teijin Kasei, which has recently completed a polycarbonate plant, is said to be negotiating with Farbenfabrieken Bayer for an agreement on polycarbonate processing know-how. The company's plant has a capacity of about 2,000 tons.

●**Canada** — Polymer Corporation's rubber production in 1960 reached the record level of 157,000 tons, said Defence Minister Raymond O'Hurley in the Canadian House of Commons. Sales topped $85m. The Minister noted that the record was achieved 'despite lower prices and stiff competition particularly in export areas where 70% of Polymer's products are marketed'. He repeated a previous statement that, despite attempts by private interests to buy the corporation's plant, the Government has no intention of selling it.

●**India** — Chemicals and Fibres of India Ltd., a new subsidiary company of Imperial Chemical Industries, India Ltd., has been registered in Bombay with an authorized share capital of Rs.10 crores (£7.5m.). The Indian public will be invited to participate in the share capital. The company will be responsible for I.C.I.'s manufacturing projects for the west coast of India, and will manufacture a wide variety of chemicals and related products for supply to Indian industries. It is said to be making negotiations for a site near Bombay.

●**West Germany** — Production of plastics rose during the 11 years from 1950 to 1960 to 982,000 tons from 120,000 tons per year, Dr Wilhelm Mauss, a director of Kalle AG, said in Berlin this week. He was speaking at the opening of the ninth West German plastics conference, attended by 1,300 delegates. The value of West Germany's plastics production rose to 2,700m. marks from 400m. marks during that 11-years period, Dr Mauss added.

●**United States** — The US Rubber company's tyre division has laid off about 50% of the plant's employees for two weeks. The plant employs about 2,300 workers. This employment cutback is being made because of reduced demand for tyres and if incoming orders for tyres pick up the lay-off period may be shortened.

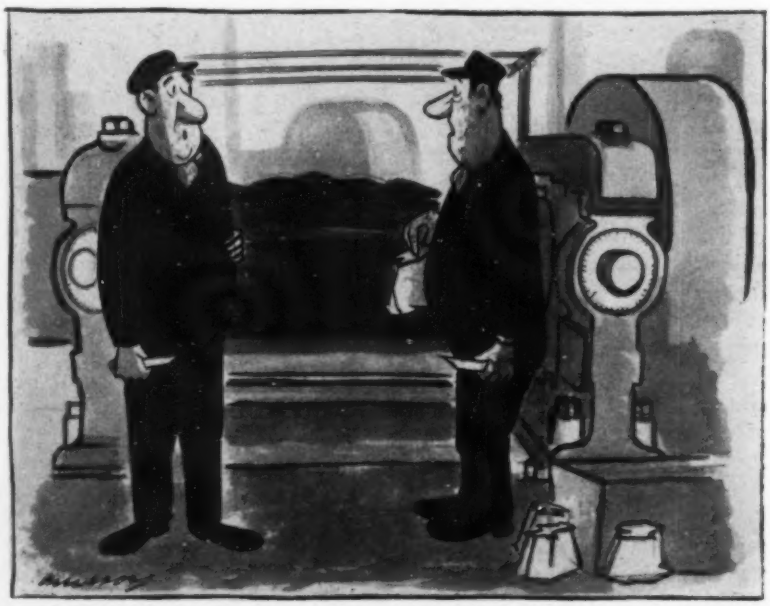
●**Israel** — Formalin will now be produced locally by a newly-opened subsidiary company of the Atlit Salt Works, according to Barclays Bank DCO. A considerable quantity will be taken up by Israel's rapidly-growing plastics industry.

●**Holland** — In conjunction with a foam rubber factory, the firm of NV 'Euromatic' Europese Maatschappij voor Mechanisatie, at Weesp, has designed a machine for the continuous formation and vulcanization of foam rubber in any length. This is said to be work on 'an entirely new principle'. The machine reduces the percentage of base material loss to practically nil, and is claimed to be fully automatic.

●**Malaya** — Traders said the rubber export figures for March, announced during the week, changed the whole aspect of the stock position. For months the alleged top heaviness of the market was the strongest bear point but this has now been wiped out, stocks at the end of March being estimated at around 125,000 tons which the traders considered as normal. (Figures on page 618.)

●**India** — The Kerala Government's proposal to extend the rubber area in the State by another 200,000 acres during the Third Plan has been approved by the Planning Commission. Of this acreage, the State Government proposes to plant 60,000 acres itself, and to provide assistance to co-operatives of smallholders, who will plant the rest.

●**France** — El Paso Natural Gas Products Co., of Texas, has combined — through its French subsidiary — with the Compagnie Français de Raffinage to form a joint subsidiary, La Société Petro-Plastique. This company is planning to construct a polythene plant near Le Havre.



'I aint bin botherin' to mix in these bags of yellow stuff — it don't make no difference to the colour at all!' — 533

Baglan Bay Site

ETHYLENE DICHLORIDE PLANT AT BHC's 'NEW GRANGEMOUTH'

Three of the main fractionating towers on the ethylene plant at Grangemouth: the new complex will be built to the Grangemouth pattern

BRITISH Hydrocarbon Chemicals Ltd. has released further details of its projected petrochemical development in South Wales. Several hundred acres of land have been acquired at Baglan Bay, between Port Talbot and Neath, and about a hundred acres of sand dunes have been cleared and levelled for initial development.

As anticipated (*RPW* October 15 1960, 567) the £10m. complex will follow the pattern of the company's works at Grangemouth.

Steam Cracker

The initial operations at the Baglan Bay works will be based on a steam cracker, producing the olefins ethylene, propylene and butadiene from the resultant mixture of cracked gases. Further products are said to be in the planning stage.

As feedstock, the plant will use a light petroleum distillate piped from the British Petroleum refinery at Llandarcy, which is about three miles from the new site.

Part of the ethylene will be transferred to another BHC plant on the same site where it will be combined with chlorine (bought from another source) to make ethylene dichloride, an intermediate used for the manufacture of vinyl chloride monomer. This ethylene dichloride plant will be a duplicate of one now nearing completion at Grangemouth.

EDC for British Geon

Most of the ethylene dichloride is expected to be taken up by British Geon for its pvc plant at Barry, South Wales, which is presently using the acetylene (from coal)/hydrogen chloride route for the monomer. The capacity of this plant is about 40,000 tons a year, and it is due to be lifted to over 70,000 tons by 1963.

The remainder of the ethylene will be transferred to the new styrene monomer plant being erected on the same site by Forth Chemicals Ltd., which is owned by BHC and Monsanto Chemicals Ltd.

Butadiene will be extracted and refined for sale for the manufacture of synthetic rubber and other copolymers. The company says that this will supplement its production of butadiene at Grangemouth, where one extraction plant has been in operation since 1956 and a second is due to be completed later this year.

No information is available on the end uses of the propylene. At Grangemouth propylene is reacted with benzene to make phenol by the continuous cumene process invented and developed by Distillers. Propylene is also used to make acetone.

Contracts Awarded

At Baglan Bay BHC is constructing facilities for steam generation, water cooling, distribution of electric power (which will be purchased from the South Wales Electricity Board), and product handling and storage, as well as workshops, stores, laboratories, offices, canteen, access roads and rail sidings.

The company has awarded the contract for the ethylene plant and the butadiene extraction unit to Stone and Webster Engineering Ltd. and the contract for the ethylene dichloride plant to The Lummus Co. Ltd.

It is planned to bring the works into operation in about the last quarter of 1962. Initially, it is expected to give direct employment to about 400 people.

The new complex increases the Distillers Co. Ltd.'s already considerable stake in plastics and chemicals. When present plans are complete at Grangemouth, well over £38m. will have been spent there since 1951. *The estimated investment at Baglan Bay is £10m., and to these figures should be added the cost of the Forth styrene monomer plant — about £3m. — and the acquisition of the British Xylonite group for £12.7m.*

Epoxy Resin Reduced

British Resin Products Ltd. has announced a reduction of £36 per ton in the price of their Epok A.1700 water soluble resin which now sells at £177 per ton.

This means that water-based paints can now be made and sold at prices below conventional solvent systems. With water as the thinner and the elimination of the cost of organic thinners, BRP expect a large demand from industrial paint users for water-based paints.

Midland Silicones Expand

NEW £500,000 PLANT ON STREAM

MORE than half a million pounds worth of new plant is coming into operation this month at the Midland Silicones Ltd. factory at Barry, South Wales.

The new installations include a plant for manufacturing methyl chloride, one of the prime raw materials for silicone production, a new direct process unit for the production of chlorosilanes, which will nearly double the previously existing capacity and a new silicone fluids production unit with more than twice the capacity of the equipment at present in use. Hydrochloric acid obtained as a by-product in the fluids unit will be used in the methyl chloride process.

Release Agents

Work is also in hand on additional production equipment representing a further investment of over £500,000. This includes new plant to manufacture emulsions for use as release agents and for the treatment of textiles and paper. This plant, which will have a capacity more than three times that at present installed, is to be brought into operation this year.

A further direct process reactor and additional distillation columns will come into service in 1962 and new production equipment for the manufacture of various siloxane intermediates is also to be built. This unit will again have a capacity more than three times that at present available, and also is to be in operation in 1962.

In addition to the expenditure of over £1m. on production facilities, the current Midland Silicones construction programme includes a £150,000 laboratory extension to be completed early in 1962 and a £65,000 canteen which will be in use later this year.

Another Polystyrene Price Cut

Shell Chemical has cut the price of its Carinex polystyrene. The price of basic grade crystal/natural has been reduced by 17% — from 1s. 11d. a lb. to 1s. 7d. Price revisions have also been made in the company's toughened grades.

This cut brings Shell's price list into line with those of Monsanto and British Resin Products, the other two main UK producers of the material, who reduced their prices last week.

Pattern of Falling Prices

This move follows the price drop last August of about 3d. a lb. Factors which have probably led up to it are the falling off of consumer sales and cheap imports of polystyrene from USA and Canada.

The reduction is part of a general pattern of falling chemical prices. In the plastics field the biggest recent price cut has been by I.C.I., who dropped the price of polythene to 1s. 10d. a lb. last November.

New Montecatini Rubbers

THREE SYNTHETICS INTRODUCED AT MILAN

ONE of the most notable features of the Milan International Fair, which opened on April 12, was the announcement by Montecatini that three new synthetic rubbers had been developed.

These new products, which are the result of studies by Dr Guilio Natta, are expected to be in production on a commercial scale in the immediate future at the Montecatini petrochemical plant which is under construction at Brindisi.

Elaprim is stated to be a copolymer of butadiene and acrylonitrile and to have good resistance to oils and aliphatic hydrocarbons. It can be processed by normal machinery and is expected to find applications in the petroleum, motor, textile and chemical industries.

Low Cost and Lightness

Dutral is reported to be an ethylene propylene copolymer with elastic properties similar to natural rubber. Its resistance to heat, oxygen, ozone and mineral agents is stated to be high and other advantages claimed for the material are low cost and lightness.

Astyr is a 1,4-cis polybutadiene and is expected to prove of value as a replacement for natural rubber in tyres, including heavy duty types. Vulcanizates are claimed to have better flexibility and elasticity than natural compounds and to develop less heat build-up during flexing.

Fenders for Turkey

A large export order of rubber dock fendering received by The Goodyear Tyre and Rubber Co. (GB) Ltd., recently left the Wolverhampton factory for Mersin, in Turkey.

Weighing about 80 tons, the order consisted of 3,614ft. of 12in. o.d. x 6in. i.d. cylindrical fendering, most in 10ft. lengths, and 2,888ft. of 6in. o.d. x 3in. i.d. fendering.

Mersin is an entirely new harbour, designed and constructed by the Royal Netherlands Harbour Works Co., of Amsterdam, Holland.

Durapipe Contract

Durapipe and Fittings Ltd. has made an arrangement for the supply and delivery of its products to generating stations of the Central Electricity Generating Board.

Microcell to Launch a Polyether Foam

MICROCELL LTD., the largest member of the BTR group, is to launch 'Crestafoam' next month, its brand of polyether cushioning material.

The company says that, to meet the high standards of the upholstery, bedding and car industries, a completely new plant has been installed at Silvertown using the latest electronic metering and control devices. The manufacturing unit is capable of developing an output of 16,000 tons a year.

Consumer acceptance of foam as a comfort cushioning material has made this an important sector of Britain's expanding plastics industry. Four years ago domestic production of polyether had only just begun; in 1959 the figure had grown to 8,000 tons, and by last year to 15,000 tons. With the brightening economic prospects in user industries, a further jump in production to an estimated 20,000 tons is expected this year.

The pattern of sales in America has followed the same trend, doubling each year since commercial introduction in 1956. In the USA in 1960 11 companies produced and sold about 50,000 tons of plastic foams. Sales success has been attributed to heavy emphasis on technical service and laboratory work on basic foaming technology.

Microcell says that the 'much discussed subject' of moulded polyether foam will be in the forefront of its development programme.

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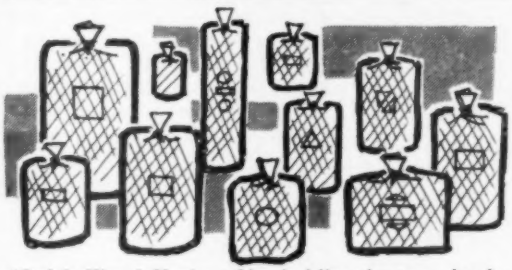

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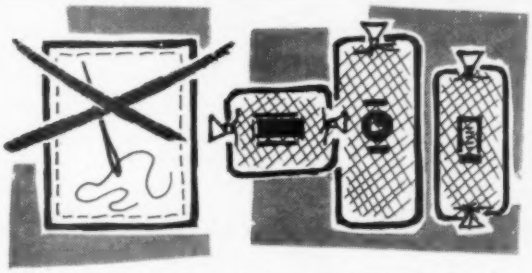
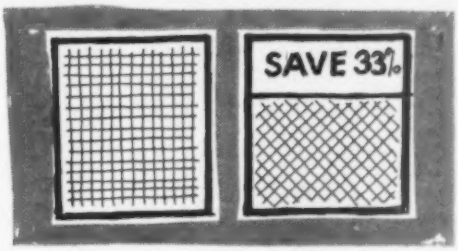


'Quick-Wrap' means you can wrap 3 to 5 parcels of goods in the time it takes to hand-sew one.



'Quick-Wrap' means less wastage, you use about 33⅓% less Hessian and the tubes can be used time and time again.

'Quick-Wrap' can be operated by unskilled labour in five easy, quick steps.

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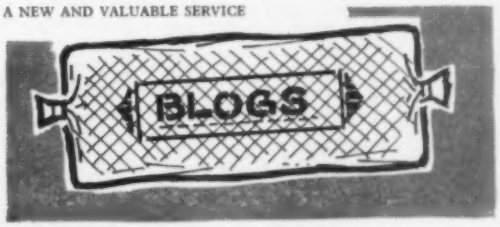

'Quick-Wrap' can be supplied with your Company's name or product or an advertising slogan.

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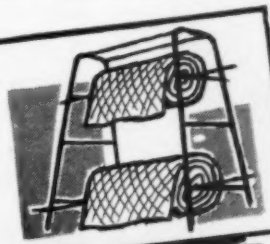

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Tough for Industry

A REVIEW OF THE BUDGET PROPOSALS

By Our Financial Correspondent

THE 1961 Budget produced by Chancellor of the Exchequer, Selwyn Lloyd, was tough — especially for industry. Most people in the rubber and plastics field seem to be agreed about that. Against the background of a balance of payments problem it was recognized that he had little to give away in concessions, and this indeed proved to be the case. The proposal of a payroll tax of 4s. a week for every worker if necessary is a revolutionary idea which could bring into the Treasury coffers £200m. in a full year.

On top of this, profits tax has been increased by 2½%. The estimated yield will be £1½m. this year, mounting to £45m. in 1961-62, and £70m. in a full year. Increasing the burden still further, the Chancellor announced that users of heavy oil would pay an extra 2d. a gallon. This, I estimate, will cost industry anything upwards of another £50m. a year.

Automation Speed-up

A good thing about the payroll tax is that it is bound to encourage employers to use less manpower more efficiently. And, of course, it will mean a speed-up of mechanization and automation. Another aspect that must be taken into account is the important fact that it is designed to encourage greater mobility of labour — a move that I feel chairmen of plastic and rubber manufacturing concerns will welcome. For it is widely known in the trade that many of them have experienced some difficulty with their recruiting campaigns over the past few years. Other sections doing less well will be more inclined to give up labour and thereby reduce overheads.

Special Surcharge

The Government, Mr Selwyn Lloyd pointed out, should be empowered to direct by statutory instrument at any time of the year, either a special surcharge or rebate to be applied to all Customs and Excise duties and purchase tax. The proposed special adjustment would be expressed as a percentage to be added or subtracted to the amount otherwise payable. The maximum change in either direction would be 10% of the existing charges. In the City itself this move was welcomed. The general opinion was that the method would work better than the Bank Rate weapon and 'never-never' controls which have always operated in an exaggerated stop-start fashion. The new way should certainly have the effect of smoothing things over more gently.

Raising the surtax level from the present starting level of £2,000 to £4,000 has been generally welcomed in the industry, but those business lunches have become a talking topic again. Mr Lloyd felt that there was something behind the strong feeling which existed that some so-called 'business entertaining' went further than purely business purposes justified. This, he considered, was an unhealthy feature, both on business and social grounds. And he asked those concerned to consider seriously whether some curtailment in the extent and scale of entertaining could be achieved without affecting business efficiency. Underlining his concern about this particular matter, he added that the system of expense allowances would be revised to provide the revenue with more precise information.

The Only Carrot

To sum up, then, it is worth noting that about the only carrot that has been found for export encouragement is the raising of surtax. This will naturally provide a much needed reward for the directors and executives who work hard and travel hundreds of thousands of miles a year to get orders from overseas countries. The rest, as far as can be seen at the moment, can hardly provide any encouragement for the industry in the export field.

Possibility of Duty Relief on Light Oils?

Budget Comment by Stuart C. Covell, Director, Federation of British Rubber and Allied Manufacturers

TWO items on the Budget will displease rubber manufacturers, though in neither case are the consequences likely to be serious.

One is the increase in motor taxation. Obviously anything that affects the motor trade affects us; but £3 a year is not in the same class as a full-scale credit squeeze, and we may confidently expect the recovery of motor vehicle manufacture to continue without noticeable interruption.

The other is the extra 2½% on the profits tax. It seems a pity; but no doubt revenue had to be found somewhere, and the relaxation on surtax was long overdue.

The Chancellor's discretionary powers to raise or lower Customs and Excise duties during the year present interesting possibilities. A number of these duties — notably that on light hydrocarbon oils — penalize rubber manufacturers by increasing the price of raw materials. Is it possible that the Chancellor could sometime be persuaded to use his discretionary powers to lighten, if only slightly, what after all is a wholly unfair burden?

As for the threatened payroll tax,

I have had some insight lately into the number of operatives employed by various firms, and my impression is that on the whole it is astonishingly few — certainly fewer than I had expected. Clearly we have gone a long way towards introducing the economy in labour which the Government desires, and the tax, if it is imposed, will hit us less severely in consequence.

Olefine Antioxidant

A new non-staining, non-blooming phenolic antioxidant developed especially by I.C.I. Heavy Organic Chemicals Division for polypropylene, has been added to the Division's development range. It is now being produced by a pilot plant and development quantities are available.

Topanol CA, in combination with dilauryl thiodipropionate, confers excellent protection during the processing of polypropylene and subsequently imparts stability during fabrication and use over a long period. This effect is particularly useful in the presence of copper for electrical applications.

Topanol CA alone is also a superior antioxidant in polythene, and outstanding protection is obtained in conjunction with dilauryl thiodipropionate.

Reclaim Applications

LOWERING PRODUCTION COSTS MOST IMPORTANT FUNCTION

THE eighth and ninth in a recent series of lectures on Reclaimed Rubber given at the National College of Rubber Technology, were on applications of reclaimed rubber, delivered by J. Westhead (BTR Industries) and J. L. Bloxham (Dunlop Rubber Co. Ltd.).

'The cost of the finished product matters most', said Mr Westhead in emphasizing that, although reclaimed rubber cheapened and stabilized the material cost, its most important function was to lower the cost of production.

Compounds containing reclaim could be mixed in less time, extruded and calendered at higher speeds and at lower temperatures, gave better flow in moulds and cured at higher speed. All these helped to minimize power consumption but, more important, they reduced man-hours per article. With labour cost continuing to increase, manufacturers dared not overlook the advantages of reclaim.

Twice as Fast

Natural rubber compounds containing reclaim were less susceptible to overmilling and could be calendered at thicker gauge without blisters. Calendering temperature was less critical and in some instances the speed could even be doubled. Fabric frictioning and topping were facilitated and could be performed at higher speeds.

J. L. Bloxham, who dealt with the use of reclaim in the tyre manufacturing industry, also stressed that, when topping tyre cords, SBR compounds 'crowned' badly by causing roll bending. The addition of reclaim gave improved uniformity and a suitable lasting tackiness.

Faster extrusion was advantageous for some purposes but the demand for smoother finish, noticeably recently, militated against the use of reclaim.

The plasticizing effect of reclaim caused the material to flow readily during moulding and the slight roughness of the surface assisted the removal of air from the mould. These features were specially advantageous in the moulding of deep articles such as battery boxes and examples were shown of mouldings carrying undercuts, from which it was difficult to avoid air-traps. Substantial economy was claimed by reduction in the number of rejected mouldings.

The high rate of cure, formerly attributed to the presence of free alkali in the reclaim, was now known to be a characteristic of neutral and heater reclaims also. The presence of combined sulphur was sufficient to catalyse the reaction although alkali reclaim tended to give greater scorch risk. This, however, could be controlled by appropriate compounding and could be an asset on occasion. The greater speed of cure of reclaim could be used to offset the tardiness of SBR while the greater thermoplasticity was helpful. Control of the flow of oil-extended SBR was another of its functions.

Colour Limitations

These advantages, said Mr Westhead, far outweighed the limitations arising from the colour of most reclaims, their high water absorption, and their deleterious effects on cut growth and abrasion resistance. Many rubber articles required properties of a lower order than those of which rubber was capable, and, in these, reclaim could be used with advantage. Reclaim was not a simple diluent, he said, and its judicious use should be permitted by some specifications which at present banned reclaim unjustifiably.

The lecturer then quoted a number of examples of mixes which had been employed for the manufacture of ebonite battery components, and various mechanical items. In spite of the advent of reinforcing resins, reclaims were still widely used in sole and heel compounds with high black content. Reclaim did not adversely affect bond strength of rubbers to metals and could even be beneficial, especially in high temperature applications, he said, because reclaim minimized the tendency of natural rubber to revert on heat-ageing. In hose and belting compounds reclaim was widely used for the reasons mentioned. It was noted that in many of the mixes quoted zinc oxide and antioxidants were not mentioned, sufficient being available from the reclaim.

Less in Tyres

The proportion of reclaim used in the manufacture of tyres was less than that used in general rubber goods, said J. L. Bloxham, types made by the natural digester process or by the reclaimator being preferred. Alkali reclaims gave excessive scorch tendency in modern tyre compounds.

Reclaimator and digester reclaims were then compared in test stocks containing added black, and graphs showed the effects of progressive increase of reclaim content on tensile strength, modulus, resilience, tear strength and fatigue resistance, these being the properties of major interest to tyre manufacturers. The graphs indicated only small differences between the two types.

Mr Bloxham stressed that in determining the proportion of reclaim which might be used, a balance must be struck between performance of the vulcanizate, the processing characteristics of the compound and the volume cost.

Reclaim was used in second grade treads, in camelback for retreading, and in casings for passenger tyres, but in giant tyres no such addition was permissible owing to the greater heating during running and the accompanying loss of wear resistance. In two- and three-piece treads, compounds containing reclaim were suitable for side walls and undercaps.

Saving Without Debasement

Tests both in the laboratory and in the field showed where cost savings could be effected without excessive debasement of quality, and figures were quoted to show results of test runs. In one case where comparable tyres were tested at 30mph with a large overload, the tyres containing reclaim failed after 25% more miles than those based entirely on natural rubber. The breakdown resulted from cord failure.

When tests employing slats on the test-drum were used to apply rapid impact to the tyre, failures occurred at the junction between tread and casing. In this case the tyres containing reclaim failed at about 75% of the mileage given by those containing no reclaim. It was therefore asserted that judicious use of reclaim to reduce cost need cause no serious debasement of service properties in passenger tyres.

Other applications of reclaim in the tyre manufacturing industry described by Mr Bloxham included the use of substantial proportions in cycle tyre compounds whose physical properties could be of a much lower order, in white side walls and in inner linings for tubeless tyres.

In the last two applications special grades of reclaim were needed. For side walls a minimum staining grade was essential although this was more expensive. In linings a butyl reclaim was used. It was explained that a straight butyl rubber compound would not adhere to the tyre but a natural rubber compound containing a substantial proportion of butyl reclaim overcame this trouble while still providing reduced permeability to air.

The tyre industry preferred reclaim from good quality tyres, continued Mr Bloxham, because it was known that certain properties of a tyre were influenced by the original material of the reclaim. Thus reclaims containing HAF black gave better wear resistance in the new tyre; high SBR content in the reclaim gave lower resilience; fatigue resistance was also known to be influenced by the type of rubber in the reclaim.

Colour slides were used to show that reclaim remained as discrete particles dispersed in rubber. From these transparencies it was possible to distinguish between types of black used in the mix and also in the reclaim, and this technique was used to check the origin of the reclaim — from passenger or from heavy tyres.

The reclaim might also influence the other ingredients in the mix. As examples, the lecturer referred to reduced bloom, thus providing the possibility of using ordinary sulphur rather than the more expensive insoluble sulphur, also to the lower level of tackifier needed and to the presence in the reclaim of sufficient stearic acid for activation.

A study of three-way systems comprising natural rubber, whole tyre reclaim and oil-extended SBR, with plotting of results on a triangular chart, had led to the discovery of combinations which provided advantageous properties. Compared with fillers, it was admitted that clay and whiting were cheaper than reclaim but their effect in debasing properties was much greater so that compounds of a given quality standard could be prepared more cheaply by the use of reclaim than by the addition of fillers.

Adhesives from Reclaim

Mr Westhead described how natural rubber reclaim could be churned with a hydrophilic colloid and then water added progressively until a change of phase occurred. Aqueous dispersions of reclaim were prepared in this way in the 1920s but had become important during World War II. The replacement of about half the latex in an RFL dip by reclaim dispersion was found to give improved adhesion to tyre cords. Although now largely replaced by vinyl pyridine for tyre manufacture, the aqueous reclaim dip was still used, notably in the carpet industry. Alkali reclaim was preferred. That these preparations gave good adhesion to a wide range of surfaces was demonstrated by many samples. It was claimed that their cost was attractive.

CORRESPONDENCE

Cellular Rubber Statistics

Sir,

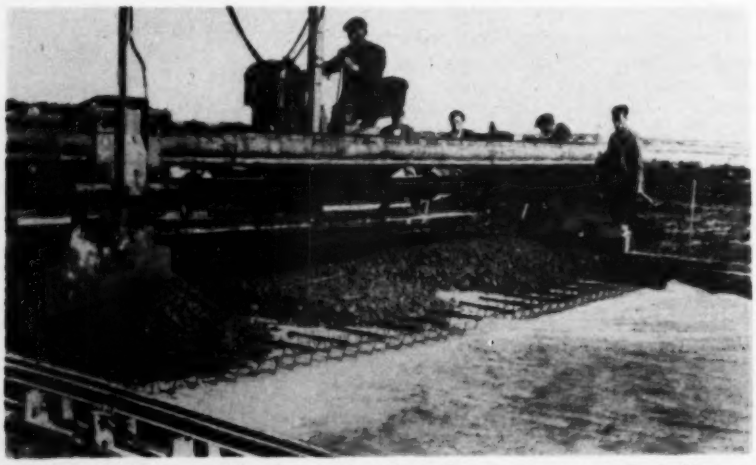
Mr Cooper, in an interesting letter on foam production in the UK which you published on April 1 (page 511), regrets the fact that since 1959 no further figures on rubber consumption in cellular rubber products are for the present being published by the Rubber Study Group.

I am glad to be able to inform you that we have been successful in persuading the Board of Trade to resume the collection of figures for the consumption of rubber by end products, and that these figures will begin to be available through the Federation later this year.

The new figures will begin where the old ones left off, so that there will be no gap in the continuity; and they will be more detailed than formerly, showing separate figures for SBR, butyl, and other synthetics as well as for dry rubber and latices.

Moreover, an entirely new set of figures will be published, giving the total value of sales under each heading, and where appropriate, quantities sold as well.

S. C. COVELL,
Director.
Federation of British Rubber and Allied Manufacturers.



Polythene is being used in the construction of new runways at Cork Airport. Here the sheet functions as a waterproof membrane, and the same grade of sheet—BX Plastics Bexthene 250 gauge—is also being used as an overlay to assist the final curing of the concrete

Carter Magna Contract from BICC

B. and F. Carter and Co. Ltd. has been awarded a contract by British Insulated Callender's Cables Ltd. for designing and producing special machinery for the 'Magna' project. This project involves the manufacture and installation of 53 miles of flexible pipeline to be laid in Canada (*RPW* January 7, 14). The pipeline will carry natural gas and the main contract, awarded by the Magna Pipeline Co. of Vancouver, is worth $7m.

Carter's co-operated with BICC in a similar project in 1956, for producing Vancouver 132kV. submarine power cables.

The company has for many years designed and developed various types of machinery for the manufacture of reinforced tubing, flexible pipe and pressure hose. The new contract from BICC is concerned with machinery for wrapping and reinforcing the Magna pipe and is complete with heavy, horizontal Carterpuller power draw-off units using hydraulic gripping tracks.

The Magna flexible pipes are 7.5in. diameter operating at a gas pressure of 1,500lb. per sq. in. and can transmit approximately 50m. cu. ft. of natural gas in 24 hours.

The system will consist of two pipes laid adjacently across the Georgia Strait from the mainland of British Columbia to Vancouver Island at a maximum depth of 810ft.

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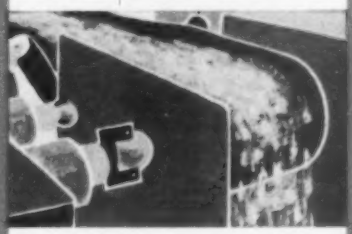
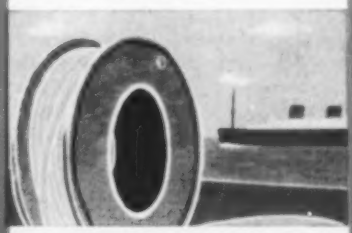


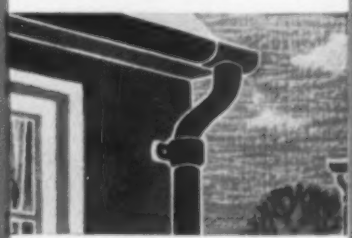
BUTYL FOR HEAVY INDUSTRY

This Butyl-covered conveyor belt at I.C.I., Billingham, has outlasted four ordinary belts and is still going strong.



BUTYL FOR ELECTRICAL INSULATION

Supertankers and liners have been wired throughout with Butyl-covered cable—lighter, smaller, (therefore less costly), with greater resistance to heat, ozone, moisture.



BUTYL FOR BUILDING

The building industry uses foam Butyl as a joint seal for gutters. It makes the perfect seal: easy to install, flexible, and absolutely waterproof.

AMERICAN LETTER — from Norman L. Hewitt

New Plastics Films and Coatings

DU PONT PREPARES TO ENTER STEREO-SPECIFIC ELASTOMER FIELD

THE plastic film and coating producers have recently presented several most interesting new materials. From the polyester family comes Goodyear Chemical Division's Vitel resins. These are thermoplastic, high molecular weight linear polyesters which boast an interesting combination of properties: abrasion and ultra violet resistance plus excellent adhesion, clarity and electrical properties. Their major promise is in the field of clear or tinted coatings for metal, particularly automobile hardware.

A new coating at a different price level is Hercules' chlorinated polypropylene-Parlon P. This sells for 58 cents a lb. in comparison to Vitels' $1.50 price tag. Not unnaturally, its claims are somewhat more modest and present Parlon P as having better stability than Parlon (chlorinated rubber) to ultra violet exposure.

Newly introduced films include a fluorocarbon — Aclar of Allied Chemical's General Chemical Division — and Terafilm, a polyester produced by Acme Backing Corp. (Stamford, Conn.) from Eastman's Tenite resin. Aclar films remain flexible at −320°F. (liquid nitrogen immersion), withstand red fuming nitric acid, and have uncommonly low moisture vapour permeability. In the resin field Pennsalt's Hynar, a vinylidine fluoride thermoplastic polymer, offers the processor the means of producing film, mouldings or coatings with the high tensile strength, chemical and heat resistance usually associated with fluorocarbons. Useful life at 300°F. is measured in years. A less esoteric newcomer is Monsanto's Lustran series (acrylonitrile-styrene-butadiene terpolymers) which supply impact resistance up to four times that of rubber-modified styrene.

. . . And New Rubbers

In the stereoelastomer group Firestone's Diene (polybutadiene) is widely advertised and Shell has announced an oil extended polyisoprene.

Announcement of Du Pont's entry into the stereo-specific-elastomer scene is in the offing. The new rubber will be a sulphur-curable ethylene-propylene-unsaturated olefin terpolymer, having all the excellent characteristics of ozone and abrasion resistance, low temperature flexibility, and high tensile strength previously found in similar copolymer materials. A recent patent (US 2,975,159) obtained by Du Pont is evidence of a considerable research programme in this field.

Decreasing Profit from Tyres

In the wake of Dayco's (Dayton Rubber) poor 1960 showing came the announcement from Firestone that, stockholders willing, it would acquire Dayco's tyre division, the Dayton Tyre Co. (*RPW* April 15, 587). Following overtures by Dayco, Firestone engineers and officials visited the Dayco tyre factory, which employs 2,500 workers, in Dayton, Ohio, and decided in favour of the purchase. With an annual volume of about $30m. Dayton ranks twelfth in size among US tyre companies. The Dayton plant began producing tyres in 1908.

One of the reasons cited by chairman A. L. Freedlander for Dayco's $6m. loss in 1960 was a price structure which was 'more competitive than at any time in the company's history'.

There has been general agreement throughout the industry for several months that intense competition has produced unprofitably low tyre prices. However, it was not until March 14 that any action was taken. At that time, US Rubber announced price increases of 5% on first line passenger tyres and 2½% on highway type truck tyres. The increase still leaves prices below the 1955 level.

In Cleveland, the Seiberling directors quarrel erupted again with a refusal by president J. P. Seiberling to supply a list of shareholders to a representative of anti-management director E. O. Lamb. Mr Lamb had previously offered to accept tenders of 45,000 Seiberling common shares at $13 a share, about $2.50 above the market price at that time.

Less Technical Jobs Per Man

Each springtime the chemical industry's personnel departments, including those of the larger rubber and plastics firms, wend their way from college to college attempting to fill their hiring quotas from the June graduating classes. A one- or two-day visit to each campus is usually sufficient to interview prospective Bachelor of Science, Master of Science, or Doctors degree recipients. More thorough interviews together with expenses-paid visits to company laboratories and factories follow. For a number of years, it has been a sellers' market for new graduates; starting salaries rose steadily each year to reach the 1960 average of $515 per month.

A young man of average scholastic attainment could choose from among ten to 15 job offers.

This spring, the trend has been arrested. There is more uncertainty, for recession mindful personnel directors and fewer horse trading tactics by the graduate. Positions offered are less plentiful, at an average of four or five per man, and acceptances have been made earlier than usual.

In the rubber industry there is evidence that technical and managerial positions at all levels are considerably more scarce than at any time in the past few years.

The First Hundred Days

President Kennedy's spending measures have quickly made themselves felt in the tyre industry. Halfway through the 'first 100 days' of the new administration came a request for substantial increases in excise taxes on tyre, tube and retread rubber. The increases amounted to 25% for highway tyres, 11% for tubes and a staggering 233% for tread rubber. The latter rate would produce a tax equal to one-third the price of the stock (usually 30 cents a lb.).

The industry's alarm and dissent was presented to the House Ways and Means Committee by Ross Ormsby, President of the Rubber Manufacturers Association. Mr Ormsby suggested that if the presently diverted portion of highway taxes was returned to use on the highway programme, no additional rubber levies would be required.

Under present regulations, set in 1956, tyres and tubes are taxed at

8 cents and 9 cents a lb., and tread rubber at 3 cents a lb. When excise taxes were first applied to the tyre industry in 1919 the rate was set on the basis of selling price rather than weight, and started at 5%. It was eliminated in 1926, but re-applied in 1932 and has risen gradually ever since. In 1960 the government realized $304m. from tyre taxes. Since 1932 a total of $3,383m. has been collected.

Slippery Rubber

Quantum, Inc. of Wallingford, Connecticut, has announced a new process which produces a Teflon-like slipperiness on vulcanizate surfaces without loss of normal elastic properties. One obvious use of such a discovery will be in longlived self-lubricating seals such as O-rings, packings, lip seals and window weather gasketing.

The process is based on graft polymerization of chemically active monomers or oligomers to the elastomer's surface, followed by hydrolysis and fluorination.

The presence of fluorine atoms produces a low level of attraction for contacting surfaces.

According to Quantum, it is possible to produce surfaces with different lubricities by varying the technique. One procedure used by the company is to irradiate the natural rubber surface with ultra violet radiation while immersing it in a 10% solution of methyl acrylate. This activates the surface and simultaneously grafts the acrylate on to the rubber. The surface is hydrolyzed to the corresponding carboxylic acid and then treated in a pressure reactor with sulphur tetrafluoride at steam temperature for 15 hours.

Import Matters

Last summer's revelation of the inexorable rise of Japanese footwear imports — to the point where they exceeded domestic production — led to requests for increased protection from both plastics and rubber trade groups. Several recent rulings have been helpful in this respect.

Shoes with synthetic rubber soles were placed in the usual 20% ad valorem category rather than in a lower class, based on special qualities of the sole. Under the terms of a March 1 1961 Bureau of Customs circular, conveyor and transmission belts imported into the US must be clearly marked at 10ft. intervals. This procedure will prevent the loss of identity which occurred when sections were cut from belts branded only on the ends.

Importers of polyvinyl chloride film and sheeting have been greatly concerned over the question of filler content, particularly calcium carbonate. When filler content exceeds a limit of 8%, the tax rate rises sharply. As a result, laboratory ash determinations have become an important part of import data, and many controversies over interpretation of data have arisen.

At the present time, the basic duty for favoured nations on plastic-manufactured articles is 21 cents a lb. When a plastic which contains filler is involved, a rate of 17% of the value of a similar article made from the usual natural material (*e.g.* leather) obtains. Thus a cheap leather substitute containing filler, is taxed on the basis of the value of the costly leather article which it is intended to replace.

Nylon Versus Tyrex

The competition between nylon and Tyrex for the tyre cord market has recently taken an interesting and rather unexpected turn. In contrast to last year's price cutting and subsequent price raising (by Tyrex), the latest developments lie in the field of performance testing. Several months past, the rayon tyre cord producers (Tyrex Inc.) exhibited truck tyres taken from 80,000 mile test runs which showed 60% of the original tread left on the Tyrex tyres and only 35% on the nylon tyres. Notwithstanding the biased source of this data, it was still somewhat startling to a public accustomed to accept the performance superiority of nylon. Lately, more impressive evidence of a rayon renaissance appeared at The Textile Research Institute meeting in New York. A report from The Fabric Research Laboratories Inc., of Dedham, Massachusetts, told the meeting that both nylon and Tyrex tyre cords maintain a high percentage of their original strength for up to 100,000 miles of rolling over the roads. Tubeless tyres of nylon and Tyrex were run at normal inflations and normal weight loads on New York taxis for 100,000 miles with recapping every 20,000 miles. 'Both nylon and Tyrex cords were found to retain most of their original strength after 100,000 miles of city driving', it was reported.

To confirm or oppose the 'taxi' results, another test was set up with both types of cords on tubeless tyres to run 15,000 miles in Nevada at extremely low inflations and an average speed of 70 miles an hour. The cars were heavily weighted. A German viscose cord was also checked on the Nevada roads. No tyre failed because of its cord giving way. 'Nylon retained 85% of its original strength, Tyrex 82%, and the German viscose 74% after 15,000 miles of road wear', the report said. 'Most of the small strength losses that did occur happened in the first 3,000 miles'.

Thyne to Construct Packaging Plant

A 20,000 sq. ft. factory is to be built by Midlothian County Council for William Thyne (Plastics) of Edinburgh, for the manufacture of moulded packaging material and disposable drinking cups from expanded polystyrene. The £55,000 plant is due to be completed by the end of the year and will initially provide employment for about 40 people.

The company will be the only one in Britain to manufacture these drinking cups, which will be made under licence granted by the Crown Machine and Tool Co. of Fort Worth, Texas.

Wing valances made by Empire Rubber Co., and incorporating I.C.I.'s Butakon S butadiene/styrene resin, being fitted at Austin's Longbridge works

Temperature Controller

AN AID TO CONSISTENT HIGH STANDARDS

THE importance of correct and accurate temperature control of plastics moulds cannot be ignored. It is an essential factor in the consistent production of good quality mouldings that the mould temperature should be maintained at a constant figure. During the last few years temperature control units have been increasingly used in the plastic moulding industry and have proved to be a necessity for economical production.

Constant temperature helps to attain a good surface finish, reduces mould shrinkage difficulties to a minimum and results in better quality products, improved output and fewer rejects.

A range of control units is being manufactured by Curwen and Newbery Ltd., of Devizes, covering a wide range of temperatures and capable of controlling mould temperatures to within 1°C. These have been available in limited numbers for some two years and have proved valuable additions to the moulding process.

Water Circulation

The most popular of these machines has been the Unicorn water circulation temperature control unit which covers temperatures from ambient to 85°C. This unit works in conjunction with an existing mains water supply or factory cooling system. Water from an outside source circulates through a heat exchanger to disperse excess heat. A mixer valve governs temperature to the mould cavity in association with an immersion heater thermostat.

The unit is housed in a compact cabinet and all controls are mounted on the control panel. These consist of on-off switches for the pump and heater; pump overload reset switch; two outlets and inlets; and thermometer for reading the temperature of the water returning from the mould cavity.

Other units in the range available from the company include an oil circulation type for temperatures up to 240°C., a refrigeration control unit for temperatures ranging from 20°C. to 40°C. and a combined heating, refrigerating unit for temperatures from 20°C. to 85°C.

The Unicorn controller, housed in a compact cabinet fitted with casters for mobility, showing all controls and thermometer recording the temperature of liquid returning from the mould cavity

IRI Golf

Penfold Trophy Winner

THE first of this year's meetings of the London section of the Institution of the Rubber Industry Golfing Society was held at the West Byfleet Golf Club last week.

The main competition of the day was for the Penfold Trophy, which was won by L. B. MacQueen with a total of 34 points. The runner-up was A. Smales (33 points).

In the afternoon, a four-ball better ball Stableford competition took place. The winners were A. McCulloch and C. N. Weller, and the runners-up L. B. MacQueen and J. E. Pilbrow.

The next meeting of the section will be held on Wednesday May 10 at Porters Park Golf Club: this will be the London Section's Qualifying Competition for the Wallwork Cup.

Cast-to-form Tooling

CHEAPER AND QUICKER METHOD

THE production of forming tools for the production of both metal and plastics components is generally an expensive and time consuming operation, involving special tool steels, the time of highly-skilled men and costly machines.

John Harper and Co. Ltd., Albion Works, Willenhall, Staffs., have accumulated experience over several years in the production of forming tools by the cast-to-form method, which results in a much cheaper tool which is still as satisfactory in performance as its conventional counterpart.

The process consists essentially of the production of a pattern of the projected tool — in plaster, metal or often an epoxy resin — from which a casting is made which has a shape as near as possible to that of the finished tool and requires very little finishing.

The material most commonly used for these tools is Meehanite but for some applications spheroidal graphite cast iron is more suitable. These consist essentially of a pearlitic matrix with a controlled distribution of graphite depending on the properties required, and frequently have superior properties and life to steels.

Tools of this description have been successfully used for many applications in the rubber and plastics industries, including glass fibre reinforced mouldings, injection mouldings, compression mouldings and rubber moulds.

Plastics in Copenhagen

The 'First International Plastics Fair of Denmark,' which will be held from September 22 to October 1 1961 in Copenhagen will be the biggest plastics exhibition ever held in Scandinavia.

New cushion against rising costs

ALL-SYNTHETIC FOAM RUBBER is here—made from a new synthetic rubber latex by Goodyear. Its name: PLIOLITE LATEX 5352. Already interested: the automotive industry, furniture companies, shoe manufacturers—even firms that have never used foam before!

WHY ALL THIS INTEREST? PLIOLITE LATEX 5352 is of such high quality that it can be used alone, does not require blending with natural latex to produce an outstanding foam. *Result: foam made from* PLIOLITE LATEX 5352 *will be substantially lower in cost than any foam rubber used before.*

ANOTHER KEY POINT: because this new Goodyear latex is man-made, its low cost and fine quality will not fluctuate.

IF YOUR PRODUCTS CAN PROFIT from a low-cost foam with excellent compression characteristics, good resilience, remarkable stress resistance and great durability—it will pay you to investigate PLIOLITE LATEX 5352. For all the facts, see your Goodyear Chemical Distributor.

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CHEMICAL DIVISION

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VIEWS and REVIEWS

Plasticizing With Water

A PAPER in *Kunststoffe* for December 1960, Vol. 50, No. 12, pp. 729-732, deals with a novel sponge whose properties are quite intriguing on a first acquaintance because of the surprising way in which water acts as a plasticizer. The sponge is a cellular polyvinyl formal, which, when dry, is hard and rigid, but readily takes up water both mechanically in the pores and also chemically to become soft and elastic. The paper is called 'Novel Sponge Products Based on Polyvinyl Formal' and is written by Dr Robert Braun.

'Polyvinyl formal' is not the simple substance its name might suggest. It is made by partially acetalizing polyvinyl alcohol which is made by partially saponifying polyvinyl acetate, so that in the finished product there are, in addition to the formal groups, both hydroxyl and ester groups. The degree of acetalization is governed by the properties of the acid catalyst used and the time and temperature of the reaction, and, in turn, governs the take-up of water and the physical properties of the water-plasticized product.

There are several processes for making the cellular article. One patent claims the production of a foam by mechanically beating air into a solution of polyvinyl alcohol of suitable viscosity and then acetalizing. Another claims the creation of a foam by using a blowing agent which gives a more uniform structure than beating.

Typical of polyvinyl formal is its hydrophilic nature, arising from the OH groups; a measure of the water-absorption capacity is the swelling factor. Viscose sponge takes up a little more water than does polyvinyl formal sponge but both take up considerably more than does natural sponge.

Cellular Structures

The paper has some useful photomicrographs, all ×40, of urethane foam, natural sponge, polyvinyl formal sponge, and viscose sponge. Each one is different from the others; urethane foam shows its typical hexagonal, closed-cell structure, polyvinyl formal has spherical cells with the walls pierced by the impinging of other neighbouring cells to give capillary intercommunications, natural sponge has a fibrillary structure, and the reticulated structure of viscose sponge is a kind of hybrid between the spherical bubbles of polyvinyl formal and the fibres of viscose sponge.

The strength of the polyvinyl formal sponge depends on density, degree of acetalization, porosity, and fineness of structure. Good polyvinyl formal sponge has a density between 50 and 90gm. per litre, the tear resistance and extension modulus depending on the exact figure.

Sponge Uses

A table gives the effects of several concentrated and dilute acids, alkalis, and aqueous solutions, and of some organic solvents on polyvinyl formal, showing generally good chemical resistance. It should be noted, however, that these sponges are sensitive to some modern detergents but washing in water effectively protects them.

These sponges are finding increasing uses in household and industrial jobs. Two types are commercially available, fine- and large-pored.

Polyvinyl formal sponge is valuable as a filtering medium. The pore size can be varied between 5 and 0.05mm. and the pore volume can be as much as 95%. Cleaning is possible by simply using a current of water in the reverse direction. The incorporation of activated charcoal, kieselguhr, or other filtering agents has been found useful in special cases. Other advantages are that the sponge can be made in any shape desired: blocks, cylinders, plates, sheets.

For years, this sponge has been used in surgery, because it can be easily sterilized or impregnated with physiologically active solutions.

For grinding and polishing wheels, quite a new field has been opened by the use of suitably compounded polyvinyl formal sponges, which are useful for polishing metals of all kinds, wood, plastics, ceramics, and glass.

Dynamic Properties of Rubber

The dynamic properties of rubber are one of its chief features and claims to attention, so that dynamic test methods are of primary importance.

There is now published, on pp. 973-980 of *Rubber Age*, March 1961, Vol. 88, No. 6, the paper by Cardillo, Gleason, Andrews, and McGarry, entitled 'High Speed Stress Relaxation', which was presented to the New York meeting of the Rubber Division of the American Chemical Society in September 1960. It is a natural development of the earlier work of Andrews and Tobolsky, and is starting to bring results not only in the practical fields of vibration control, sound insulation, and suspension systems, but also in the theoretical field of the molecular structure of elastomers.

'The test method used in this investigation represents a relatively new and less widely used approach to the field of dynamic testing. It is based on the principle that the behaviour of an elastomeric vulcanizate under conditions of vibration is dependent on the basic viscoelastic properties of the material, as expressed by a distribution of relaxation times. Therefore, the vibration characteristics can be determined from stress relaxation measurements'.

Stress Relaxation

A much wider frequency range can be covered by this method and the temperature can be readily controlled at any desired value. The ranges covered in this paper are, in fact, from frequencies of 10^{-10} to 10^{10} cps, and temperatures from −40°C. to +60°C.

It is a 'one-shot' extension test (after a preliminary conditioning extension) in which a cylindrical, dumb-bell sample is elongated extremely rapidly by means of a piston and helical springs, at a rate of extension averaging 75in. per sec., which is equivalent to about 10,000% per sec. Load relaxation data are recorded from a fast and a slow oscilloscope and from a strip chart recorder.

COMMENT ON SCIENTIFIC AND INDUSTRIAL MATTERS

by **F. C. JENNINGS**

Such complications as there are, arise in the analysis of the data obtained and especially in the conversion to dynamic moduli. A complete analysis was made of two mixes, one based on natural rubber and one on butyl, and tests were run from −40°C. to +60°C. at elongations of 50, 150, and 300%.

'The dynamic modulus curves for the two rubbers are similar in general shape, and show a characteristic rise with increasing frequency. Natural rubber shows less frequency dependence than does butyl rubber, but undergoes a more pronounced temperature shift. Damping (as measured by loss modulus) was higher for the butyl rubber and reached large values at much lower frequencies than the natural rubber'.

The results show that butyl rubber is a very good vibration damper, and also emphasizes the magnitude of the effect of temperature. (With natural rubber, for instance, lowering the temperature by 10°C. is equivalent to multiplying the frequency by 100.) This underlines the necessity of specifying both the temperature and the frequency of operation in rating elastomers for anti-vibration work.

This approach is only at the beginning of its usefulness — for example, valuable results are likely to arise if it were applied to compounding problems — but the paper serves to bring out the type and scope of information to be obtained by the method, which will undoubtedly take its place in the dynamic testing field and has potentialities as a tool of basic research.

The Louisville Meeting

The *Rubber Age* for March 1961 also presents brief summaries of the papers presented to the Rubber Division meeting at Louisville on April 19-21.

Prof. Henry Eyring of the University of Utah delivered a paper on 'Thermodynamic and Transport Properties of Monomers and Polymers', and Dr Herbert A. Winkelmann was presented with the 1961 Goodyear Gold Medal and replied with a lecture on 'Coatings for Rubber'.

Encourager Les Auteurs

Another feature of the Louisville meeting was the presentation of the Best Paper Award to R. M. Murray and J. D. Detenber for their paper, 'A Study of First and Second Order Transitions in Neoprene'.

This award seems to be an excellent idea which we might well copy over here. The IRI might take it up, or the PI, or both of them together, aided perhaps by the technical and trade press, and supported by — who knows? — one of the larger manufacturers in our industry who feels a call to do something to improve the standard of technical communication.

I do not know the basis of the ACS Best Paper Award but it seems that in both subject matter and quality of presentation there has been a distinct falling-off in the standard of original technological and scientific papers published in England. Anything which will improve these two aspects of technical writing will help the industry. It would be good publicity for the winner's employer, too.

A number of other interesting papers presented at Louisville are worthy of mention.

'The Structure of Various Natural Rubbers', by five Firestone people, reports that they have found many botanically unrelated plants to have 'an aqueous stereo-regulating system that generates polyisoprene of high cis-1,4 content', but they can suggest no simple system of duplicating it outside the living plant.

'Biaxial Fatigue Testing of Vulcanizates' by a group of Goodyear technologists, reports on extensive fatigue tests carried out using a cycle of alternate stretching in two perpendicular directions. The test is thought to have 'many areas of usefulness for developing good endurance qualities'.

'The Measurement of Structure in Carbon Blacks' by a group from J. M. Huber Corp., develops a novel approach which correlates the specific volume of a carbon black at high compression with structure and with the extension modulus of the vulcanizate.

'Differences Between Butadiene-Acrylonitrile Copolymer Blends and Single Copolymers', by C. E. Fleming, shows that a blend of two copolymers, one of high and the other of low acrylonitrile content, is quite different in the characteristic and important properties of resistance to oil and to low temperatures from a single copolymer of the same acrylonitrile content as that of the blend.

A group of authors from Polymer Corporation, Sarnia, have written a paper on 'Development and Application of a High Solids Nitrile Rubber Latex' in which they review the use of nitrile latex foam rubber in journal lubricating devices for railway freight cars.

Urethane Elastomers

Two papers on urethanes suggest useful improvements in manufacturing techniques which may extend the application of these elastomers. Three people from Wyandotte Chemical Corp. discuss a so-called 'one-shot' method for the polyol-TDI reaction. It is based on an efficient catalyst for the isocyanate-hydroxyl reaction, 'to allow a rapid build-up of the polymer containing suitably spaced cross-links'. Metal salts of organic acids, among them stannous octoate and lead naphthenate, were favoured. The physical properties of the one-shot elastomer were similar to those of the product made by pre-polymerizing, but the process was much more economical in time.

The paper, 'New Techniques in Processing Urethane Elastomers', has six authors, all from Mobay, although I do not suppose that it is six times as good as another with only one author. What these six have done is to evolve a cheaper, simpler process than milling or casting, so that the polyurethane can be extruded, injection moulded, transfer moulded, blow or compression moulded. This is a signal advance. It starts with a semi-cured product, and though many of the ultimate properties are obtained without further cure, an oven-heating seems to be needed to provide the degree of cross-linking which ensures low set and good resistance to solvents. The final properties are equal to those obtained by the casting technique.

CHARLES JENNINGS.

MEN and MATTERS

A Review of People and Events

by Peter Richards

AN Englishman has been made professor of polymer physics at America's leading rubber university. The man: Dr Alan N. Gent, who gained an international reputation at the Natural Rubber Producers' Research Association as principal physicist in charge of applied physics and engineering research and development. The university: Akron (Institute of Rubber Research).

Dr Gent was educated at London University. Before he joined the NRPRA he was with the John Bull Rubber Co. at Leicester.

Commenting on the appointment, Dr Maurice Morton, Director of the Institute of Rubber Research, said: 'Dr Gent's achievements in the field of the mechanical behaviour and engineering applications of rubber have already been recognized internationally, and we are delighted to have him join our staff to further expand our research in these areas'.

Safety Vinyl

Teaching children road safety with model traffic signs is an expensive business — when metal signs are used. A half-size metal sign may cost several pounds. Signs made of plastic are now, however, cutting the cost; a set shown at a recent road safety conference consists of five units — such as Belisha beacons and traffic lights — and costs only 48s. Made by the Birmingham firm Visigraph Ltd., the signs are of hardboard covered with a self-adhesive vinyl such as Fablon. Coloured discs are used for the traffic lights, and to stop the traffic all the safety organizer has to do is to peel off a green disc and stick on a red.

One of the aims of the Royal Society for the Prevention of Accidents is that every school in the country should have a cycle training scheme. This ingenious use of plastics, making it possible for every school in the country to have a set of cheap, durable signs, should be a big factor in ensuring the success of this scheme — and in reducing the number of road accidents.

Protecting the Female

My odd spot this week: non-woven Terylene used for isolating female flowers when cross-pollinating pine and larch trees.

To carry out controlled experiments on such flowers, they have to be protected from stray pollen. Paper bags were used at first but were unsatisfactory. Polythene bags were discounted because the combined heat and condensation generated inside killed the buds. But Terylene bags (incorporating a small pvc window) have proved excellent for the job.

These experiments may sound a little esoteric, but they are important for improving the vigour of the few trees we have left in this country. When the bud breaks into flower, the bag is pierced by a hypodermic syringe containing pollen from specially selected trees and pollen is blown on to the flowers. After pollination the bag is sealed again for a further ten days, and then removed. This method ensures that the parentage of the resulting seed is known. By planting the resulting seedlings on different forest sites and by assessing their vigour and form, the best parents can be selected. These parents will provide the seed for future forest planting stock.

Bruce Marshall has joined the staff of Artrite Resins Ltd. as the company's representative in the area North London/East Anglia for their range of polyester resins

Beer Protection

At a Bury St. Edmunds brewery a large steel germinating drum in the maltings has been treated internally with an anti-corrosion coating based on Araldite epoxy resin.

The drum, which holds 50 quarters of malt, is normally painted once a year, but the plastic coating gives a much more permanent 'beer protection'. The whole coating process takes only two or three days, including time for curing (thirsts as well as coatings?).

Durapipe Experiments with Improved ABS

Trials are now being made at the West Drayton, Middlesex, factory of Durapipe and Fittings Ltd., with an improved American ABS copolymer. R. L. H. Damerham, Durapipe's technical director, who has just returned from a month's study tour of plastics manufacturing plants in the USA, said he was satisfied that of the many new plastic materials which had been receiving wide publicity both here and in USA, none were yet at the stage where they could confidently be used for pipe or fittings.

The company is certainly making a name for itself in America. 'Durapipe's reputation amongst the principal US raw material manufacturers is such that we have been asked to undertake an exclusive series of development trials with new or modified plastics', Mr Damerham said.

Mr Damerham, who is chairman of

'And then right again!' An organizer of the national child cycling training scheme, using model signs faced with vinyl adhesive *(see: Safety Vinyl)*

the plastics fittings sub-committee of the British Plastics Federation and UK delegate to the International Standards Organization, also renewed contact with his opposite numbers on the various organizations concerned with standards of pipe and fittings in the USA.

New IRI Fellow

Alfred G. Cogswell, assistant personnel manager at Fort Dunlop — whose job involves looking after 10,000 workers — has been elected a Fellow of the Institution of the Rubber Industry. Sixty-year - old Mr Cogswell joined Dunlop in 1917, being a member of the first process control group in the technical department. In 1937 he transferred to the production side, and after the war he became assistant planning manager at Fort Dunlop, then assistant to the general works manager, before being given his present appointment in 1951.

In 1956 he was Fort Dunlop organizer of the Duke of Edinburgh's Study Conference and was Honorary Secretary of the First and Second Industrial Safety Exhibitions and Conferences held in Birmingham. He was a member of the executive council of the Birmingham Industrial Safety Group.

Mr Cogswell, who is chairman of the Fort Dunlop Accident Prevention Council and Committee, will find no difficulty in 'knowing what to do' when he retires. His wide range of interests span from music and golf to (during the holidays) rounding up and driving sheep to the Capel Curig sheep sales in the Welsh mountains.

Goodyear Appointments

Goodyear (GB) Ltd. has announced that H. Bury (previously sales manager, Scotland) has received a special appointment to handle executive sales assignments for the company.

Mr Bury joined the company as a salesman 35 years ago. One of the best-known personalities in the Goodyear sales organization, he was divisional manager, Ireland, before going to Scotland.

The company has also made P. F. Kavanagh divisional manager of the Scottish division. Born and educated in Edinburgh, Mr Kavanagh has held various executive sales appointments for Goodyear in the Far East.

Appointments in Brief

Laporte Industries Ltd. has announced that G. Hickson and Dr F. S. Spring, FRS, have been appointed directors of Howards and Sons Ltd.

* * *

J. S. Mitchell has resigned from the board of Barrow Hepburn and Gale.

Polly Ester Says...

'Hypochlorite—one of them people who's always ill'

THE LEGAL ANGLE

Slander of Title

By a Barrister

YOU cannot quote in an advertisement the trade mark of a competitor, we pointed out in this column last week, even though you do not use it for your own goods. Indeed, you may not even use someone else's registered trade name merely to compare it unfavourably with goods you produce, under some other name.

But surely, it might be asked, the law does not prevent you from making such comparisons at all? How far can you go in building up your lines in comparison with those of others in the trade?

In the case in which it was decided that there is an infringement of trademark every time you use the mark of another firm, in the way we mentioned, the Judge also said that there could be *no* lawful complaint if, instead of using the registered name of the chemical concerned, the advertiser had merely referred to the goods by their maker's own name. It follows, then, that you are quite entitled to circularize the trade, saying that, 'Our pvc is better and cheaper than that produced by Q Ltd.'. You do not use the brand name, and there is no infringement of any trademark.

A Matter of Fact

'But suppose the comparison is untrue? Suppose that a competitor says that his goods are better than mine when I can actually prove as a matter of fact that my line is of superior quality?'

It is a tort — an actionable wrong in civil law — to put out a false and malicious statement about someone's goods, which damages his business, his material interests or his personal reputation. This tort is variously referred to as 'slander of title', 'trade libel', 'slander of goods' or 'injurious falsehood'. The essence of the matter is that — as in the case of an ordinary defamation — someone's good name is injured as a result of a false and malicious statement of fact.

The Court Refused

Not so long ago, however, a manufacturer did his best to obtain an injunction against a competitor who had falsely stated that his own goods were of better quality than those of the plaintiff. But the Courts specifically refused to go into a question of the relative quality of the goods produced by the two manufacturers. They said that the comparison was made by way of 'commercial puffing' and that they would not therefore interfere.

The moral? If someone attacks your goods, referring to them by their trade name, the sooner you go to your lawyer, the better. Even if the comparison was entirely accurate, there will be an infringement of your trademark and you will be able to prevent any repetition of the wrongful act. But if someone simply says that his goods are better than yours, referring to your name but not to the registered mark of your product, you will probably have to shrug it off — at least as far as the law is concerned. Even if the comparison is false, it is almost certain that there will be little or nothing that you can do about it.

Rubber Statistics

FRANCE — MALAYA — UNITED STATES

THE French Ministry for Industry and Commerce has issued the following rubber statistics for December 1960, January and February 1961 (in tons):

CONSUMPTION

	Jan.	Dec.
Natural rubber ..	10,645	10,292
Latex	1,160	1,052
Synthetic	8,680	8,797
Butyl..	1,110	1,177
GRS Buna and Polysar	6,307	6,273
Others	998	1,075
Artificial Latex ..	265	272
Total.. ..	29,165	28,938

TYRE PRODUCTION

Feb.	Jan.
22,850*	22,820

INDUSTRIAL RUBBER PRODUCTION

Feb.	Jan.
18,435*	18,780*

The final figure for industrial rubber production in December was 19,210.

* *Provisional* (details of entry into plants, stocks at the end of the month and tyre imports and exports are not yet available).

Malaya

Pan-Malayan rubber exports in March amounted to 108,624 tons, according to preliminary figures issued by the chief statistician. This is the highest figure since November 1959, when 109,469 tons were exported. In February exports amounted to 83,676 tons.

The high export figure imparted firmness to the Singapore rubber market when it was announced last week.

United States

Imports of natural rubber in February totalled 22,004 tons, compared with 28,990 tons in January, and imports of latex were 4,719 tons, compared with 4,761 in January, according to the Department of Commerce in New York.

The Department has corrected the figure for synthetic rubber consumption in February to 101,192 from 90,192 and that for natural rubber consumption to 28,573 from 29,573.

The US Rubber Manufacturers' Association has announced the following details of tyre production and exports for February:

Production. — Motor car tyres, 7,641,000. Truck and bus tyres, 948,000. Motor, cycle, truck and bus inner tubes, 3,140,000.

Consignments. — Motor car tyres, 6,123,000. Truck and bus tyres, 879,000. Inner tubes, 3,276,000.

Exports. — Motor car tyres, 43,000. Truck and bus tyres, 49,000. Inner tubes, 58,000.

Domestic shipments. — Car tyres (original equipment), 1,930,000. Car tyres (replacements), 4,150,000. Truck and bus tyres (original equipment), 264,000. Truck and bus tyres (replacement), 569,000.

Aerosol Pack for MS4

The silicone grease MS4, used for protecting and insulating ignition systems and electrical equipment, is now being marketed in an aerosol pack, under the name Ambersil MS4.

MS4, a product of Midland Silicones Ltd., has good dielectric properties, is water-repellent and oxidation-resistant, and has a working temperature range from −50°C. to 200°C. It readily adheres to the dry surfaces of rubbers, and is said to give them high surface resistivity to tracking and the effects of corona discharge. MS4 is claimed to protect and maintain the flexibility and resilience of natural and synthetic rubbers, vinyl plastics and similar materials.

Dutch Plant for Esso

£6½m. EXPANSION NEAR ROTTERDAM

A SECOND aromatics plant is to be built by Esso on the site of their Botlek refinery near Rotterdam. The new plant, on which construction will start this year, is expected to come on stream in the middle of 1963, will cost £6.5m. and will be the largest of its kind in Europe.

Initial capacity will be approximately 220,000 metric tons per year and this will raise European production of petroleum based aromatics to more than 750,000 metric tons.

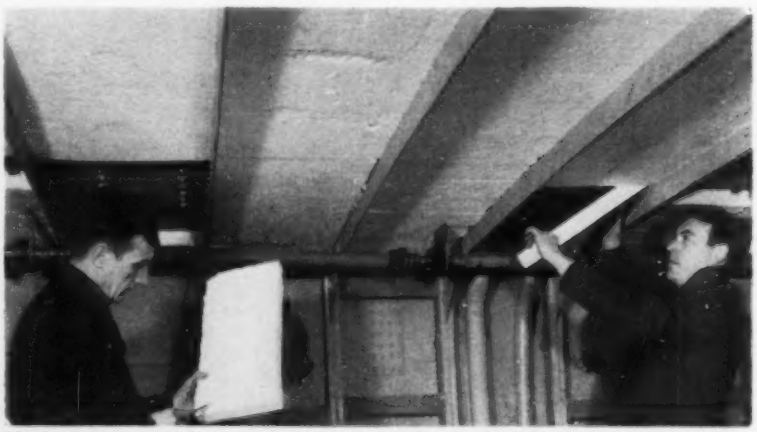
Demand for aromatics in Europe is increasing rapidly because of their use as basic intermediates for plastics, synthetic fibres, resins and detergents. Main sources of supply at present are from coal tar by-products and the increasing demand is exceeding the supply from coal coking plants.

The chemicals to be produced will include benzene, toluene and xylenes and these will be marketed, not only in the Netherlands, but will also help to meet expanding needs in other Common Market countries, as well as in the UK and Scandinavia. Products will be available immediately in limited quantities from other Esso plants in Europe and the US.

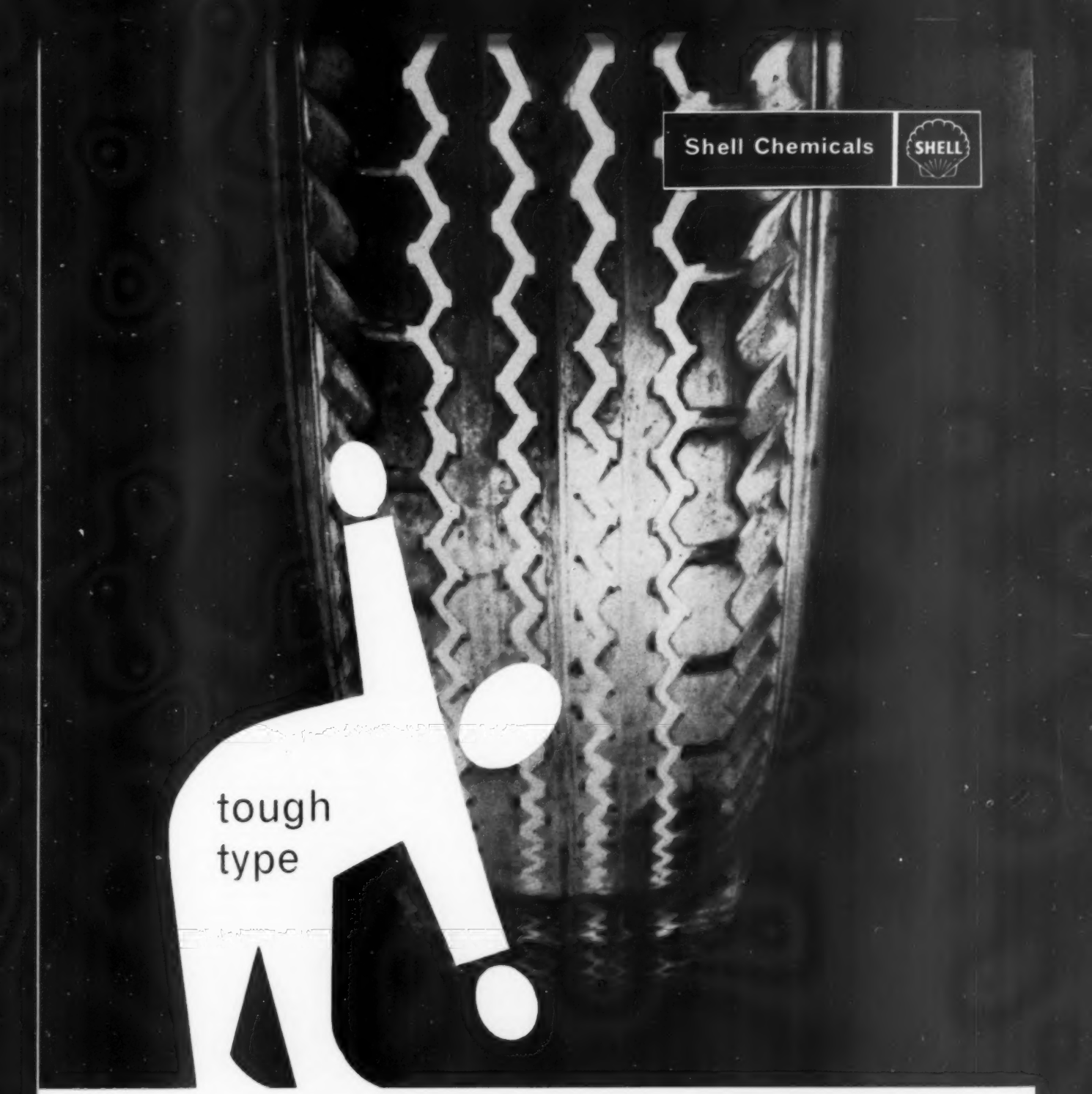
Dexion's Nylon Wheel

A development that, it is claimed, will open up new fields for gravity conveyor systems has been announced by Dexion Ltd. This is a specially treated nylon Glidewheel, designed for operation without the bush assembly normally found in conveyor wheels.

The inertia of the ½oz. nylon wheel is said to be better than that of the previous ball-bearing wheel, and the more generous proportions (diameter 2.312in., width ¼in.) afford a wider load-bearing surface, giving improved tracking on shallow gradients and smooth conveyance for quite soft containers. The wheel is designed for use with Dexion's slotted angle, but, being completely weather-proof, it now makes the permanent outdoor gravity conveyor a practical proposition.



Marleycel expanded polystyrene has been used to insulate all the accommodation in *Fairwood II*, an 80ft. luxury yacht built by Clelands Ltd. Marley 15 adhesive was used to bond the material



New tyre? No, quite old; yet tread still taking it. Reason, 'Cariflex' SBR, resistant to abrasion, weathering, age. 'Cariflex' S-1500 and S-1712 are made to the highest specifications for toughness, consistent quality and ease of processing; exhaustively tested both in Shell laboratories and on the road.

And, now commercially available, 'Cariflex' Isoprene Rubber. Resilience high and heat build-up low in carcass and tread stocks – in sidewalls too, where 'Cariflex' IR reduces mould rejects. Its light colour is especially suitable for white sidewalls. For tyres as for many other applications, 'Cariflex' is the right rubber for the job.

For further information consult your Shell Company (in the U.K., apply to Shell Chemical Co. Ltd., Plastics and Rubber Division, 170 Piccadilly, London, W.1.)

Cariflex
TRADE MARK

SHELL-MADE RUBBER

Plantation Newsletter

by our Malayan Correspondent

RUBBER RESEARCH PROCEEDINGS PUBLISHED

FROM KUALA LUMPUR

DESTINED to become one of the most important reference works on natural rubber ever published, the entire proceedings of last year's natural rubber research conference in Kuala Lumpur has just been published by the Rubber Research Institute.

The report is exhaustively detailed, and covers 986 pages, including diagrams, charts, photographs and statistical tables.

Divided into two parts — general sessions and scientific papers — it begins with the opening address by the Minister of Commerce and Industry, Inche Mohamed Khir Johari.

The address on natural rubber research delivered at the final session by the Controller of Rubber Research and Chairman of the Malayan Rubber Fund Board, Sir Geoffrey Clay, contains perhaps the best description of the conference and its achievements.

Sir Geoffrey remarks that there can be few industries whose research organizations need a wider spectrum of scientific knowledge than the natural rubber industry.

This book has it all, viewing every stage in the life of natural rubber, from trace elements in the soil to the design of rubber components for structural engineering.

This excellent record will be an invaluable companion to the considerable army of research workers who are helping to put the industry on an even sounder footing, and ensuring Malaya's future economy in the process.

Where the Planes Will Go

The row over the siting of Kuala Lumpur's new international airport on land belonging to the Rubber Research Institute has reached a happy ending.

The row was mentioned by G. H. Lang, retiring president of the United Planting Association of Malaya, speaking at the association's annual meeting. He said that, as members were now aware, the RRI experimental station had, to all intents and purposes, been spared.

'This is a happy end to a matter which has not been without its unhappy episodes', he added.

Some months ago, one of Malaya's top planters, J. C. Mathison, resigned from the Malayan Rubber Producers' Council, after a warning from the Government that it would sever all connexions with it if he was not removed. Mr Mathison had earlier criticized the Government for planning to requisition 1,953 acres of RRI experimental station land for the new Kuala Lumpur airport.

Mr Lang made it clear that he did not wish to enter into the rights and wrongs of the matter, but he was sure that members of the Association would wish to record their appreciation of the service which Mr Mathison had rendered to the industry as a whole over a period of years.

Mr Mathison has since retired and left Malaya.

Sodium Arsenite

The United Planting Association wants the Malayan Government to lift the ban on the use of sodium arsenite, or at least to defer it, until a cheap and effective alternative is available. They felt that the banning of sodium arsenite, a weed killer, was a serious blow to rubber production.

The ban will take effect from August 31 this year. It was primarily imposed by the Government because of the number of cattle deaths in this country resulting from them having licked sodium arsenite used on estates and smallholdings.

Thugs and Thefts

Malaya's biggest union, the National Union of Plantation Workers, believes that organized gangs of secret society thugs are active on several rubber estates throughout the country.

The general secretary of the Union, P. P. Narayanan, attributed their presence to the increasing number of rubber thefts coupled with threats of violence. He claimed that secret society influence on estates was gained through contract labour.

Earlier, the chairman of the Selangor Planters' Association, M. T. Stanley, said that rubber thieves were now resorting to violence and the intimidation of estate workers. He said that many planters in central Malaya were becoming increasingly concerned.

Mr Narayanan said he believed that until the third party contracts on estates were stopped, the influence of secret societies could not be removed.

He added that some progressive companies had realized the danger of employing contract workers and had stopped this practice.

A prominent planter with 23 years' experience said it was only recently that he had noticed thuggery and violence on estates.

COMPANY MEETING

Northwestern Rubber Co. Ltd.

(Manufacturers of Reclaimed Rubber)

EXPANDING MARKET FOR PRODUCTS

THE annual general meeting of Northwestern Rubber Co. Ltd. was held on April 18 in Liverpool, Mr J. S. Shaw (the Chairman) presiding.

The following is an extract from his circulated statement:

The year 1960 has been one in which further substantial steps have been taken towards bringing the plant up to date and thereby improving your company's competitive position. Throughout the year there was an expanding market for our products and this trend continues. It has been the policy of your board throughout the year to do everything possible to ensure that the quality of production was kept up despite the heavy pressure on the factory, and also to give the greatest possible degree of service.

As I stated last year, we were undertaking the renewal of our steam raising plant and digesters. I am sorry to have to record that through delays in delivery this programme could not be commenced until the latter part of the year and, in view of certain difficulties which arose with the design of the new digesters, it is not yet fully completed.

The fact that production exceeded the record of 1959 is a great tribute to the untiring efforts of our managing director and his staff. The production was achieved despite one of the major producing units being out of action for some six months and the general dislocation caused by the major capital programme. In addition to these items a further programme of modernization of plant was undertaken, which added to these difficulties.

During the current year the installation of the pressure vessels will be completed and attention is now being turned to our cracker plant which will be substantially renewed during the current year and our refining capacity will be further increased so that by the end of 1961 we expect our capacity to be approximately twice that available at January 1959.

You will wish me, I am sure, to make some reference to our prospects for the coming year. In my view these are good, as the developments of last year and some of those to be put in hand in the current year, will begin to bear fruit. At the moment of writing the outlook for trade in general does not look too bright but this has not yet affected us. The results will continue to be affected for several months by the disturbances implicit in our capital programme but I shall be disappointed if 1961 does not show a further advance in profit. You will note that capital commitments on the balance sheet were substantial but arrangements are in hand for a proportion of these to be dealt with on a medium term basis and I do not anticipate that we shall require further long term finance to deal with the present projects.

The report and accounts were adopted.

Exporting Plastics to Australia

EFFECT OF HOME MANUFACTURE ON UK SALES

A REPORT on the market for plastics materials in Australia appeared in a recent Board of Trade publication. According to this, in 1959, the Australian plastics industry employed 9,500 persons in 337 factories and had an output valued at £A41m.

The report states that Australia has a growing plastics industry supplied with materials from both local and overseas manufacture, is the UK's best customer, and takes more plastics materials from the UK than from any other country. The maintenance of the market depends upon quality and price, and the future pattern of imports might depend on more applications of existing materials and on the introduction of new materials. A continued increase in demand is expected but the value to UK exporters depends both on the technical properties and qualities of the materials offered, and on the comparative pricing, not only in relation to the existing and impending Australian products, but also to the other overseas supplies.

Generally, the overall demand for powders, liquids and solids for all industries is running at about 60,000 tons per annum of which possibly some 27,000 tons of moulding powders are required to satisfy the plastics industry. Imports of plastics materials during the last year were approximately 17,000 tons. It is noticeable that where the Australian demand for a specific material has been high enough to warrant local manufacture, development has already taken place and anticipated increases in demand are being met by manufacturing developments which are taking place now. Therefore, there is a movement towards Australian independence of overseas supplies for those materials commonly used at present. These particular materials are listed in the report.

Future Developments

There are several large developments taking place at present which should increase the Australian production of polystyrene, polythene and pvc. The present position is that by the end of 1961 the Standard Vacuum Refinery Co. in Victoria in a £A12½m. plant, will be producing ethylene and butadiene which will be supplied to CSR Chemicals. This company, in association with B. F. Goodrich Chemical Co., will produce polyvinyl chloride, and, in association with Dow Pty. Ltd., in a new £A3m. plant, will produce styrene and polystyrene. The report says that the Shell Chemical Co. at Clyde, NSW, in a £10m. plant, should be producing ethylene suitable for sale to I.C.I.A.N.Z. at Botany, for the manufacture of polythene. Monsanto Chemicals (Aust.) Ltd., together with Petro-Chemicals Holding Co. (Paccal), will probably produce ethylene for supply to Australian Petro-Chemicals Ltd. in Sydney, who in a £2m. plant will produce styrene and polystyrene.

The various units within Australia are expected to be fully capable of adequately catering for the Australian demand in the future, and a future possibility is the production of nylon 6 from imported caprolactam by a joint company involving the Allied Chemicals Corporation of America and the Polymer Corporation of Australia.

Plastics Not Made in Australia

The report, in its comment regarding specific plastics materials based on Australian manufacturing capacity, states that Australian capacity can easily meet the need for urea, phenol and melamine formaldehyde and cellulose acetate, is more than able to meet the general demand for pvc, polythene and polystyrene, and can meet the demand for most common types of polyesters. However, acrylics, alkyds, polyamides, cellulose acetate butyrate, ptfe, polypropylene and polyethers are not made in Australia, while polyurethane, although not manufactured yet, is being considered for development.

The UK during 1959/60 provided plastics materials to the value of over £A5m. or 51% of the total imports. Australia has, therefore, provided the UK industry with its most important individual world market for plastics materials. UK export statistics show that, in 1959, Australia provided a market for over £4.2m. sterling out of total UK exports of nearly £40m. sterling. The report states that the imports of plastics materials into Australia are growing, but the UK's share seems to be declining. While it is not possible to quote exact estimates for the imports of plastics materials specifically for the plastics industry, it can be said that, excluding polyamide resins, Australia offers a market at present for £A8m. worth of imported plastics materials of which the UK, during the period July 1959 to June 1960 provided £A3.2m. or 40% of the total imports.

Most plastics raw materials are subject to protective duties. Under the British Preferential Tariff, the duties range from 7½% to 30%, and under the Most Favoured Nation rate from 12½% to 47½%. Grouped under Category 'R' the following synthetic resins and moulding powders are subject to import licensing control: pvc pure polymer, vinyl chloride, polythene and styrene in any polymerized or copolymerized form. (Category 'R' applies to goods covered by the Import Licensing Replacement Plan.) This is intended to allow an importer of goods in this category to obtain his genuine requirements from any source, but at the same time to prevent the speculative building-up of unused but valid import licences against the possibility of more severe import licensing restrictions being re-imposed in the future. Import licensing restrictions on some types of plastics raw materials were removed in February 1960.

BOOK REVIEW

British Plastics Year Book

THE 1961 edition of British Plastics Year Book* differs very little from the form which has appeared in past years and which has become so well known to all connected with the plastics industry. Since the book is so widely used, and generally accepted as being of considerable value as a reference work a review becomes nothing more than a reiteration of what has been said about it in the past.

For the sake of those not familiar with the volume, however, it is divided into ten sections — one more than last year. Three of these are devoted to classified lists of manufacturers and suppliers of materials, finished products and equipment. The fourth section (the new edition) lists companies giving basic services from moulding and extruding to welding and metallizing. Another section gives a large list of trade names of materials connected with the plastics industry.

The names and addresses section contains over 7,000 entries of which 4,000 are those of overseas firms. The Who's Who section lists names and positions of prominent people actively engaged in the industry in the UK.

The set of tables giving comparative properties of plastics materials has been revised and brought up to date, and in the same section are included a revised glossary of technical terms, lists of new companies registered during 1960, and specifications relating to plastics.

The book is a very handy size, is easily used and forms a useful addition to the shelves of all people connected with plastics and to users and manufacturers of machinery and equipment.

∴ Copies may be ordered through the Books Department, RUBBER AND PLASTICS WEEKLY, Maclaren House, 131 Great Suffolk Street, London, S.E.1.

*British Plastics Year Book 1961. Published for *British Plastics* by Iliffe Books Ltd. Size 9¼in. x 6¼in. 712 pages. Price 45s.

Polysar XPRD A-249

Among nitrile rubbers recently produced by Polymer Corporation Ltd. is XPRD A-249. A report on this rubber appeared in *RPW* April 15, 593, where it was incorrectly described as a polysar latex; it is, in fact, a solid rubber.

Rubber Markets

LONDON

Wide fluctuations occurred in a hesitant and uncertain market. Prices were marked up in sympathy with the unexpected higher Eastern levels and were supported to some extent by short-covering and a little speculative interest. Factory demand, however, remained disappointingly slow for the most part.

Latest prices are as follows:

No. 1 RSS Spot: 26¼d.-26⅜d.

Settlement House:

May 26¼d.-26⅜d.

June 26⅜d.-26⅜d.

July/September 26⅜d.-26⅜d.

October/December 26⅜d.-26⅜d.

January/March (1962) 26⅜d.-26⅜d.

April/June 26⅜d.-26⅜d.

No. 1 RSS cif basis ports:

May 26¼d.-26⅜d.

June 26¼d.-26⅜d.

Godown:

May 89¼ Straits cents nominal.

LATEX

Centrifuged 60% latex per gallon in drums, seller, May, 15s., cif European ports. Spot, seller, 15s. 6d. Bulk, seller, d.w. 15s. 1d. Creamed, seller, 14s. 9d. nominal. Normal, seller, May, 12s. 2d.

NEW YORK

The New York rubber market ruled as under on April 17:

DEALERS' PRICES

	US cents per lb., ex-dock	
	April 17	Previous
No. 1 RSS, April ..	31⅛s	30⅛b–30⅜a
May ..	31⅛s	30⅛b–30⅜a
No. 2 RSS, April ..	31⅛s	30⅛b–30⅛a
May ..	31⅛s	30⅛b–30⅛a
No. 3 RSS, April ..	31⅛s	30⅛b–30⅜a
May ..	31⅛s	30⅛b–30⅜a
No. 1 RSS, Spot ..	31⅜n	30⅛b–30⅜a
No. 3 amber blanket crepe, April ..	26⅛n	25⅜n

FUTURES—REX CONTRACT

	April 17	Prev. Close
May ..	31.60b–31.80a	30.85t
July ..	31.70b–31.85a	30.80b–30.90a
Sept. ..	31.65t	30.65b–30.70a
Nov. ..	31.50b–31.65a	30.75t
Jan. ..	31.40t	30.70t

Sales: 80. Tendency: Strong.

Rubber futures were firm on April 17, up about ⅛ cent per lb. on scattered buying, reflecting the strength abroad. Dealers indicated that the foreign markets were higher due to demand for natural rubber. Later, futures were strong, up more than one cent in some positions on continued commission house buying and trade covering. Dealings were fair. Physical rubber was quiet. In the closing stage, futures maintained their strength.

SINGAPORE

The market ruled quietly steady throughout the morning of April 17. Interest was centred on No. 1 sheet. As prices advanced, sellers became more reserved and shortcovering had to meet the market. Lower sheets were neglected and factories were quiet. In the afternoon, movements were slow and prices finished rather below the day's best. Lower sheets were in little demand.

	Malayan cents per lb., fob Malayan ports to open ports	
	April 17	Prev. Close
No. 1 RSS, May ..	90⅛–90⅜	88⅛–89
June ..	90⅛–90⅜	88⅛–89
No. 2 RSS, May ..	89⅛–89⅜	87⅛–88⅛
No. 3 RSS, May ..	88⅛–88⅜	86⅛–87⅛
No. 4 RSS, May ..	85 –86	84 –85
No. 5 RSS, May ..	77⅛–78⅛	76⅛–77⅛
No. 1 RSS, Spot ..	89⅛–89⅜	88⅛–88⅜
No. 3 blanket thick remilled crepe, May	70⅛–72⅛	69⅛–70⅛
No. 1 fine pale crepe, May	95 –96	93 –94
2X thin brown crepe, May	69 –70	67 –68
Tendency:	Quiet.	

The Industries Syndicate quote latex, native produce, 60% centrifugal, packed in rectangular drums, fob at 175.00d. per gallon.

AMSTERDAM

The Amsterdam rubber market ruled as under on April 17:

	Guilders per kilo	
No. 1 RMA	April 17	Previous
April	2.47	2.44
May	2.47	2.44
June	2.47½	2.44
April/June ..	2.47½	2.44
July	2.47	2.44
August	2.46	2.44

Sales: Nil. Tendency: Steady.

DJAKARTA

Prices showed little change from previous levels on April 17. Traders were generally reserved. A small sale of No. 1 sheet, ready delivery, comprising about 10 tons took place in the afternoon at 37.50 rupiahs per kilo. The market closed very quiet.

	Rupiahs per kilo	
	April 17	Previous
Spot No. 1 Priok ..	36.50b	36.50b
Spot No. 2 Priok ..	35.50b	35.50b
Spot No. 3 Priok ..	34.00b	34.00b
No. 1 fine pale crepe, Spot	31.50b	31.50b
Tendency:	Quiet.	

BANGKOK

The price of No. 1 RSS at Bangkok on April 17 was 28.25 (28.12½) US cents per lb.

CEYLON

The price of No. 1 RSS at Colombo on April 17 was 111 (108½) Ceylon cents per lb.

Export Opportunities

Belting for Finland

Firma Report, Fredriksgatan 57, Helsingfors, has informed the British Embassy at Helsinki that it would like to act as agent for UK manufacturers of rubberized cloth for making conveyor belts. The firm is private and Mr and Mrs H. Hohenthal, who established it, work as commission agents. They purchase on their own account and already hold agencies for UK firms.

Manufacturers interested in this agency enquiry should write direct to the Finnish concern, notifying the British Embassy, Korkeavuorenkatu 34, Helsinki, that they have done so.

Calls for Tenders

Tyres and Tubes

Tyres and tubes are required for International Super AW6 Tractor by The Director of Supply, Directorate of Supply, PIDC House, Motijheel, Dacca, to whom bids should be sent, quoting Tender No. EPS/XII/928/Engg./61. Closing date: May 6 1961. (Ref. ESB/12872/61.)

Foundry Pattern Letters

Recently AEI Plastics (Aldridge) Ltd. introduced a series of polythene pattern letters for the foundry trade. This series is now followed by a new range of sharp-faced pattern letters for the small sizes (below ½in.) which have the advantage of producing an improved impression on all types of castings.

In common with the range of larger pattern letters, the new type is only half the price of equivalent metal characters.

GRP Caravan

A new type of motorized caravan, which is being marketed by Thomas Hosking and Son Ltd., contains many glass reinforced plastic fabrications on a BMC 15cwt. chassis.

The entire roof of this caravette is a one-piece plastics moulding which has been reinforced with Turners 'Duramat' (ACM615 emulsion bound) and finished with surfacing tissue (ACM1). In addition to the roof, the shaped interior lockers, and most of the interior panelling, are also 'Duramat' reinforced.

L. Stechler and Co.

The address of L. Stechler and Co. Ltd. and its associate company, A. E. Hemsworth, has been re-named 175 Malvern Road, Kilburn, N.W.6. The company has not changed its premises.

Industry INTELLIGENCE

Technical Data

Berk Mineral Filler

A new mineral substance, which is claimed to impart exceptional brightness and greatly increased tear strength to natural and synthetic rubbers, is now available from F. W. Berk and Co. Ltd., Berk House, 8 Baker Street, London, W.1. Called Blancomilo, after the island of Milos where it is mined, it is a siliceous kaolin containing a comparatively large proportion of fine silica particles. In a typical sample, 94% of the particles measured less than two microns. Its brightness was measured at 95-96 (Magnesium Carbonate=100) which indicates that its use in white mixtures may result in economy of expensive pigments.

The tear strength of a typical vulcanizate was found to be 20lb. (BS 903), or nearly double the average of two compounds in which Blancomilo was replaced by commercial china clay, but which were otherwise identical. Other physical characteristics were similar.

Blancomilo is compatible with most rubbers, and its use in compounds based on synthetic rubber has the same advantages as in those based on natural rubber. Ageing resistance is said to be excellent.

New Polythene Resin

A new polythene resin that provides blown tubing or cast film with good clarity and high strength is being introduced by US Industrial Chemicals Co. at the 30th annual AMA Packaging Exposition in Chicago. Both cast film and blown tubing made from the new USI resin will be converted into bags at the USI exhibit.

Field evaluations conducted by USI's Polymer Service Laboratories indicate that blown film extruded from Petrothene 232 exhibits satisfactory appearance and high strength, and that blown or cast film made from the new resin compares favourably with similar film made from the leading competitive resin.

Among the film's processing properties are its good heat-seal characteristics and take-off rates, and handling ease on bagmaking and packaging equipment.

Further information on the new resin is available from Technical Literature Department, US Industrial Chemicals Co., 99 Park Avenue, New York 16, NY.

Tenite Polythene Pipe

Properties and extrusion data on Tenite polythene pipe-grade formulations are presented in Materials Bulletin No. 8, issued by Eastman Chemical Products Inc.

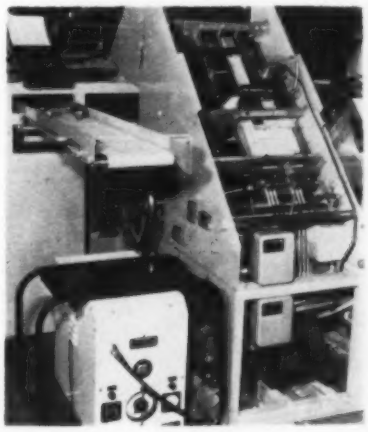
The materials listed meet the requirements of either Type II or Type III polythene pipe as defined in Commercial Standards CS 197-60, and have also been tested and approved by the National Sanitation Foundation. The bulletin includes details of Tenite polythene 2721E-80060, specifically developed for a Type III pipe of higher flexibility and manoeuvrability than that produced by other resins of this type.

Copies of the bulletin are available from the plastics division, Eastman Chemical Products, Inc., Kingsport, Tennessee.

Machines, Materials and Equipment

HF Book Binding

A new development in book binding has recently been evolved and a



Radyne HF welding generator, made by Radio Heaters Ltd., Wokingham, Berks., is employed with this new technique.

The cover and pages are preassembled and hand loaded on to a conveyor which moves them into a punching station, where a number of slots are punched along the back edge. The punched book then moves to a further station where short lengths of pvc tape are automatically threaded through the slots. The books then move into position on an RF welding station, where a pair of cam actuated electrodes effect a tear-seal weld of very narrow width, and extremely neat appearance, on all tapes simultaneously. The ring binding tapes are welded by power supplied from a Radyne Type W.550 welding generator, which feeds the electrode system via a flexible co-axial cable.

Finished bound books can be produced at speeds as high as 60 per min.

Publications

Glycerine Applications

Glycerine News, issued by the UK Glycerine Producers Association Ltd., 5 Bridewell Place, E.C.4, describes new applications of glycerine listed in patent specifications and other published sources.

Issue No. 26, March 1961, includes news of glycerine used as a humectant plasticizer for regenerated cellulose film, the wide use of glycerol-based alkyd resins in finishes for modern aircraft, and of a propellant used for the third stage of the Minuteman missiles composed of aluminium and ammonium perchlorate in a nitro-cellulose-nitroglycerine binder.

The issue also mentions an article in which recent developments in glycerine production are discussed, and the writer describes synthetic detergents prepared from glycerol derivatives, and gives an account of the role of glycerol in polyesters, polyurethanes and epoxy resins.

Nylon and Gears

British Rawhide Belting Co. Ltd. has issued a catalogue on nylon and gears. Information is given on nylon as a bearing material, on moulded nylon brushes, nylon sheet and nylon screws. Tables give particulars on Toughness nylon rod, grade M.2, and diagrams help to explain the Toughness nylon slat conveyor chain. A concise account is given on machining nylon, and technical information on Akulon is recorded.

With the claim that the company can manufacture gears in any material, in any pitch, any pressure angle and all regular systems now in use, the booklet concludes with tables on stock-brass spur gears 32 D.P., stock chain drives, rawhide blanks and pinions, texolex blanks, and reduction gearboxes.

Acetate for Extrusion

Materials Bulletin No. 7, issued by Eastman Chemical Products Inc., describes typical extrusion conditions and properties of a new formulation, Tenite Acetate 081, developed especially for extrusion into clear sheet that is claimed not to 'blush', cloud or haze when subjected to deep-draw vacuum forming.

Suited for blister, bubble and skin packaging that requires sparkle and transparency as well as toughness, thin-gauge sheet from the new formulation is said to have excellent thermoforming characteristics on minimum cycles.

The bulletin is available from the plastics division, Eastman Chemical Products Inc., Kingsport, Tennessee.

British Standards

Anaesthetic Breathing Bags

The title of BS 3353:1961 is anaesthetic breathing bags made of anti-static rubber.

This new British Standard is one of a series of standards for anaesthetic equipment which are concerned with interchangeability of fittings, size designation and safety.

Adequate anti-static properties are specified for breathing bags and it is stipulated that the necks of the bags shall fit properly onto mounts of standard size and shape (to be specified in a future British Standard for breathing attachments of anaesthetic apparatus).

The standard also requires that the sizes of breathing bags shall be designated by the nominal capacity in litres and recommends a range of preferred sizes.

Copies of the standard may be obtained from the British Standards Institution, Sales Branch, 2 Park Street, London, W.1, price 3s. each.

Future Events

Institution of the Rubber Industry

Midland Section. — April 27 at the James Watt Memorial Institute, Great Charles Street, Birmingham, at 6.45 p.m. Annual general meeting.

Plastics Institute

Midland Section. — April 24 at the Queen's Hotel, Birmingham. Annual luncheon. April 25 at Nottingham — Visit to Boots Pure Drug Co. Ltd.

Latest Wills

Herbert James Fussell, of Alston, 39 Bath Road, Keynsham, near Bristol, founder and former managing director of Fussells Rubber Co., Weston-super-Mare, and formerly of Bath, who died on December 2 1960, left £3,886, £3,819 net value.

Rt. Hon. Montague Charles Eliot, 8th Earl of St. Germans, KCVO, OBE, of Port Eliot, St. Germans, Cornwall, formerly a director of Seaport (Selangor) Rubber Estate, who died on September 19 last, left unsettled estate valued at £24,812, making a total of £424,812.

Spill-proof baby's beaker moulded in Rigidex high-density polythene J. L. Caplin Ltd. A rail replaces the conventional handle

TRADE MARKS

Objections to the registration of any of the undermentioned applications may be lodged with the Comptroller-General of Patents, Designs and Trade Marks at the Patent Office, 25 Southampton Buildings, Chancery Lane, London, W.C.2, within one month of the date mentioned. The objections must be stated on Trade Marks Form No. 7, cost £2, obtainable through any money order office. The extracts—from 'The Trade Marks Journal'—given below are reproduced by permission of the Controller of H.M. Stationery Office.

CANNON

(802,395). Rubber mats included in Class 27. The Cannon Rubber Manufacturers Ltd., Cannon Works, Ashley Road, Tottenham, London, N.17. (Class 27; March 8 1961.)

(802,396). Toys and playthings, all made of rubber, but not including toy guns or ammunition therefor. The Cannon Rubber Manufacturers Ltd., Cannon Works, Ashley Road, Tottenham, London, N.17. (Class 27; March 8 1961.)

Boy Scouts (812,226). Polyvinylchloride plastics included in Class 17 in the form of sheets. The Boy Scouts Association (an Association incorporated by Royal Charter), 25 Buckingham Palace Road, London, S.W.1. To be associated with No. 375,139 (2021, 1269) and another. (Class 17; March 1 1961.)

Elfin (806,753). Domestic rubber gloves included in Class 21. J. Allen Rubber Co. Ltd., Whitecroft, Lydney, Gloucestershire. (Class 19; March 1 1961.)

Polybricks (810,709). Plastics included in Class 17, in the form of blocks. Rupert Brooke, 22a Kings Road, St. Leonards-on-Sea, Sussex. To be associated with No. 810,710 (4305, 300). (Class 17; March 1 1961.)

Merlon (802,538). Synthetic resins for use in manufactures. Mobay Chemical Co., 1815 Washington Road, City of Pittsburgh, State of Pennsylvania, USA. Address for service is c/o Stevens, Langner, Parry and Rollinson, 5 to 9 Quality Court, Chancery Lane, London, W.C.2. (Class 1; March 15 1961.)

Lanomix (812,036). Plasticizers, being chemical substances for addition to concrete to improve the workability thereof. George Lillington and Co. Ltd., Willow Lane, Mitcham, Surrey. (Class 1; March 15 1961.)

(B800,880). Cutlery, forks and spoons, all for table use and all made of plastics. British Egg Marketing Board, Wingate House, 93-107 Shaftesbury Avenue, London, W.1. To be associated with No. 798,669 (4281, 1110) and another. (Class 8; March 15 1961.)

Budene (807,164). Synthetic rubber. The Goodyear Tire and Rubber Co., 1144 East Market Street, Akron, State of Ohio, USA. Address for service is c/o Marks and Clerk, 57 and 58 Lincoln's Inn Fields, London, W.C.2. (Class 17; March 15 1961.)

Methocel (809,889). Films of thermoplastics included in Class 17 for use in manufactures. The Dow Chemical Co., City of Midland, State of Michigan, USA. Address for service is c/o W. P. Thompson and Co., 12 Church Street, Liverpool, 1. (Class 17; March 15 1961.)

Ethocel (809,891). Films of thermoplastics included in Class 17 for use in manufactures. The Dow Chemical Co., City of Midland, State of Michigan, USA. Address for service is c/o W. P. Thompson and Co., 12 Church Street, Liverpool, 1. (Class 17; March 15 1961.)

(803,262). Articles made of wood, glass, metal or plastics or combinations of any two or more of these materials, all being goods included in Class 21. Argentor Products Ltd., Model Factory, Sloper Road, Cardiff. (Class 21; March 15 1961.)

NEW COMPANIES

Mill Plastics Ltd. (687,306). March 22. Capital: £100 in £1 shares. To carry on the business of manufacturers of, and dealers in, plastics, etc. The first directors are: Patrick B. Bird and Gillian Bird, both of The Old Barn, Hatfield Heath, near Bishops Stortford; Patrick W. Vaughan and Jean P. Vaughan, both of Old House, Old House Lane, Roydon, Herts. Regd. office: The Guild House, Water Lane, Bishops Stortford, Herts.

Dorothy MacGunn Ltd. (687,288). March 22. Capital: £100 in £1 shares. To carry on the business of manufacturers of artificial flowers and floral decorations of all kinds, moulded plastic goods, fancy goods, toys, etc. The permanent directors are: Dorothy MacCunn and Ian H. MacCunn, both of Overmarsh House, Ness-in-Wirral, Ches. Regd. office: 47/9 Castle Street, Liverpool, 2.

S. H. Rainbow Ltd. (687,281). March 22. Capital: £100 in £1 shares. To carry on the business of manufacturers, moulders and fabricators of, and dealers in, plastic and glass fibre substances and materials, and goods manufactured therefrom, etc. The directors are: Sidney H. Rainbow and Mrs. Olive E. Rainbow, both of 71 Quorn Gardens, Leigh-on-Sea. Regd. office: 71 Quorn Gardens, Leigh-on-Sea.

E t m a (Engineering) Ltd. (687,372). March 22. Capital: £2,500 in £1 shares. To carry on the business of die-sinkers, stampers and drop stampers, enamellers, press workers, general engineers, workers in plastics, etc. The directors are: Mrs. Edna Rose, Westway, 150 Rosemary Hill Road, Streetly, Staffs.; Mrs. Vera M. Blakemore, 95 Yateley Avenue, Great Barr, Birmingham; David R. Coleman and Arthur Wardle. Regd. office: 37 Northampton Street, Birmingham, 18.

Linda Tyre Co. Ltd. (686,209). March 13. Capital: £100 in £1 shares. To carry on the business of manufacturers and wholesale and retail dealers in rubber tyres and tubes, etc. The first directors are: Harold F. F. Packer and Mrs. Jean G. Packer, both of 20 Radcliffe Square, Putney Hill, S.W.15. Regd. office: 16a Creek Street, Battersea, S.W.11.

M i l s o n Sales (Northampton) Ltd. (687,082). March 21. Capital: £100 in £1 shares. To carry on the business of manufacturers, moulders, prefabricators, producers, exporters and importers of, and dealers in, plastic and plastic products, polyester resins, etc. The first directors are to be appointed by the subscribers.

Plastics Engineering and Developments Ltd. (687,092). March 21. Capital: £100 in £1 shares. To carry on the business of manufacturers, designers, fabricators, converters and processors of, and dealers in, reinforced plastic and plastic materials, etc. Regd. office: 1 Sidlaw Terrace, Clarence Road, Bognor Regis.

Increases of Capital

Tropical and Eastern Produce Co. Ltd. (263,083), 10/15 Mincing Lane, E.C.3. Increased on June 15 1960, by £10,000 in 6,000 preference and 4,000 ordinary shares of £1 each, beyond the registered capital of £30,000.

South Perak Rubber Syndicate Ltd. (266,243), 105 Bishopsgate, E.C.2. Increased on July 22 1960, by £140,000 in £1 ordinary shares, beyond the registered capital of £160,000.

Caledonian (Selangor) Rubber Co. Ltd. (109,883), Candlewick House, Cannon Street, E.C.4. Increased on August 10 1960, by £75,000 in 2s. shares, beyond the registered capital of £100,000.

Cellulose Development Corporation Ltd. (339,497), 212 Uxbridge Road, Hatch End, Middlesex. Increased on July 5 1960, by £25,000 in 3s. 4d. ordinary shares, beyond the registered capital of £100,000.

P. and B. Plastics Ltd. (612,516), 1 Booth Street, Manchester. Increased on August 3 1960, by £4,000 in £1 ordinary shares, beyond the registered capital of £1,000.

Ceilon Acoustics Ltd. (663,869), development of polyester to be used in relation to acoustics, etc., 32, Kennedy Street, Manchester, 2. Increased on July 19 1960, by £4,900 in 2,000 'B' shares and 2,900 'A' shares of £1 each, beyond the registered capital of £100.

County Court Judgments

NOTE.—These Judgments which are supplied from the Registry of County Court Judgments, Lord Chancellor's Department, 3 Dean's Yard, London, S.W.1, are not necessarily for debt, and some may have since been satisfied. They may be for damages or otherwise, they may relate to actions bona fide contested between the parties, or they may be against defendants liable in a representative capacity and not personally; but no distinction is made on the register. A judgment does not imply inability to pay. Judgments are not returned to the Registry if satisfied in Court Books within twenty-one days.

G. A. Harrison, 12a Southgates Road, Great Yarmouth, Norfolk, foam articles factor. Great Yarmouth, £30 11s. 6d., November 9 1960.

H. A. Pennock (H.F. Welders) Ltd., 34 Greenwich High Road, Greenwich, London, S.E.10, dealers in plastic materials. Woolwich, £39 5s. 9d., November 7 1960.

Indo Rubber Supplies Ltd., Hertford House, Hertford Place, Coventry, Warwickshire. Luton, £71 2s. 1d., November 21 1960.

X-Lon Products Ltd. (against plaintiff), 48 Gillingham Street, London, S.W.1, plastics manufacturer. Bloomsbury, £50, December 1 1960.

Redditch Tyre and Rubber Co., Green Lane, Studly, Warwicks. Mayor's and City, £57 4s., November 30 1960.

Morgan Plastics Co., 35 Vittoria Street, Birmingham, 1, Warwicks., motor body manufacturers. Halifax, £14 3s., November 29 1960.

L. V. Franklin (T/A Thermo Asbestos Rubber Co.), 147 High Street, Yiewsley, Middlesex. Uxbridge, £54 16s. 8d., December 2 1960.

Alfred Netleton, 222 Birchfield Road, Redditch, Worcs., rubber merchant. Redditch, £190 2s., December 1 1960.

Askew Tyre Service, 31 New Kent Road, London, S.E.1. Woolwich, £32 17s. 10d., November 16 1960.

Southern Plastics, Sherborne Road, Farnborough, Hants, glass fibre manufacturers. Aldershot, £23 12s., December 19 1960.

The West Bromwich Tyre Service, 34 Hallam Street, West Bromwich, Staffs. Westminster, £23 12s., December 20 1960.

William Tyre Service, 634 Harrow Road, London, W.10. Westminster, £27 14s., December 20 1960.

Vincent Palmeiri, 54a Fountain Road, S.W.17, Surrey, car tyre dealer. Wandsworth, £40 10s., October 27 1960.

Virex Plastics Ltd., 26c Brighton Road, Birkdale, Southport, Lancs. Barnet, £44, November 30 1960.

J. B. Wilson, 6 Gascoyne Road, Barking, Essex. Mayor's and City, £245, December 16 1960.

Lightweight Plastics Ltd., Goodwin Road, N.9. Edmonton, £56, December 29 1960.

CLASSIFIED ADVERTISEMENTS

RUBBER AND PLASTICS WEEKLY

APPOINTMENTS VACANT

6d. a word, Minimum 12/6 **Box 2/-**

AN unusual opportunity is open to a young salesman with ideas, whose experience covers laminated and spread textiles in the rubber and plastics fields. The appointment will be based on the factory sited a few miles north-east of Manchester. A generous salary will be paid to a suitable candidate, and a car will be provided.—Applications, which will be treated in the strictest confidence, should contain comprehensive details of business career, and should be made to Sales Director, Box 990. (990)

ASSISTANT chemist required by medium-sized company manufacturing sponge and mechanicals. He will be required to supervise the compounding section of the laboratory under the direction of the Chief Chemist. This is a first-class opportunity for a man under 35 who has had several years' experience in works or laboratory to become a member of an expanding and very progressive organisation.—Write giving full details of experience, qualifications, positions held and salary required to Box 996. (996)

CHEMIST required for factory laboratory. Some experience of drying oils and/or plastics preferred. Assistance with accommodation may be available.—Apply stating age, qualifications and salary expected to Personnel Manager, Linoleum Manufacturing Co. Ltd., Hale Street, Staines, Middlesex. (992)

STAFF APPOINTMENT

DESIGNER AND FITTER ENGINEER OF HOSE COUPLINGS

A vacancy exists for a new staff appointment with an old-established and progressive rubber hose manufacturer in Hertfordshire as a fitter engineer for designing and supervising the assembling of low pressure and high pressure cotton and wire braided hose couplings, and other hose fitting work.

Excellent prospects for staff promotion.

Age between 30 and 40 years. Previous experience very necessary.—Box 966. (966)

APPOINTMENTS VACANT

RUBBER TECHNOLOGISTS

(age 23-27) with LIRI qualification and some practical experience are required to form a small team responsible for the technical control of all manufacturing processes and for the solution of technical problems arising in production departments.

Experience of compounding operations is essential and applicants should preferably have some knowledge of the manufacture of one of the following products: hose (braided and ply), belting (including PVC) and general mechanicals.

Generous starting salaries are offered to attract young qualified men who are seeking promotion to responsible positions in production or technical departments. Terms of employment include annual salary reviews, year-end bonus, superannuation, removal and housing assistance.

Applications should be addressed to Personnel Officer,

GEORGE ANGUS & CO. LTD.

Walker Works, Newcastle upon Tyne, 6.

(997)

RUBBER technologist required for a senior position with an East Midlands rubber company. The duties involve responsibility for production and development compounding in the rubber and allied fields. Good organising ability and a practical outlook are essential. This position is open to science graduates or those possessing a recognised qualification in rubber technology, and having several years' experience in this field. A salary of not less than £1,400 p.a. is envisaged.—Please apply to Box 975. (975)

A PROGRESSIVE COMPANY

in the Rubber Industry has an opportunity for a man with proven capability in Shop Floor Management. The successful applicant must have a Work Study background and ability to manage people. This is a senior appointment and only those capable of accepting increasing responsibility need apply.—Write giving full personal details to Box 987. (987)

AEI

Associated Electrical Industries, Cable Division,
require a

DEVELOPMENT CHEMIST

for work with thermoplastics in their Process Development Department, Gravesend, Kent.

Applicants, preferably aged 25 30, should possess a degree in Chemistry and desirably but not essentially, should have industrial experience associated with the use of thermoplastic materials. An ability to co-operate with Production and Research personnel is most important. The work will consist of the development of thermoplastic formulation and of improved methods for their processing into cable form.

Good facilities are available for the man appointed to develop his own ideas.
Applications, which will be treated with strict confidence, giving full particulars of qualifications, experience, previous appointments with details of salaries, should be addressed to:—

Manager, Process Development Department,
Associated Electrical Industries Ltd., Cable Division, Gravesend, Kent.
All applications will be acknowledged. (981)

APPOINTMENTS VACANT

(continued)

RUBBER chemist/technologist required by a progressive medium-sized rubber company to fill the position of chief chemist. Applications are invited from chemists with experience in compounding, process control and development. A contributory pension scheme operates. Housing assistance will be given. All applications will be treated in confidence.—Write stating age, present salary and full details to Box 984. (984)

RUBBER technologist required by The Natural Rubber Producers' Research Association for research and development work, involving close collaboration with research teams of physicists and chemists. Qualifications looked for are degrees in physics or chemistry, or equivalent diploma in rubber technology. The appointment will be made depending upon qualifications, age and experience within the salary range £750—£1,695, plus children's allowance, with superannuation under the F.S.S.U. scheme. Promotion to higher grades depends on ability and service, and every encouragement, including a liberal publication policy, is given to active and capable recruits to display initiative and responsibility.—Apply to The Director of Research, N.R.P.R.A., 48-56 Tewin Road, Welwyn Garden City, Herts. (986)

WORKS superintendent required for progressive medium-sized rubber company. Applicants must be capable of developing an established unit presently employing 200 and expected to grow rapidly. A proved record of success in a similar position, knowledge of modern production methods and handling of labour are essentials. Contributory pension scheme. Housing assistance will be given. All applications will be treated in confidence.—Write stating age, present salary and giving full details to Box 983. (983)

SENIOR RUBBER TECHNOLOGIST

Progressive organisation located in South-West Lancashire require a man about 25/35 years of age to fill the above vacancy. Applicants should have at least AIRI or equivalent qualification, and possess good knowledge of rubber manufacture and general mechanicals. Duties include research and process development of products based on rubber and thermoplastics, administration, control and direction of laboratory staff. Permanent superannuated appointment carrying a substantial salary and scope for advancement within the organisation. Applicants should give brief particulars including age, qualifications and career in first instance to Box 991. (991)

APPOINTMENTS VACANT

(continued)

LABORATORY assistant, male or female, required for rubber and plastics factory in South-West London, for testing and control of raw materials. Good opportunity with progressive firm.—Write stating age, experience and salary required to Box 982. (982)

APPOINTMENTS WANTED

6d. a word, Minimum 10/- Box 2/-

LATEX expert. Special foam rubber moulding and spreading processes, 4 years' overseas experience as production manager, free for work in November, 1961. Overseas preferred. —Box 998. (998)

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VANDYKE 6925 (739)

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6d. a word, Minimum 12/6 Box 2/-

THERMOPLASTIC scrap. We always buy large and small quantities and pay prompt cash.—Send offers to J. W. Nash and Co., Ltd., 27 Beethoven Street, London, W.10. Ladbroke 4655. (531)

WANTED, clearing lines of latex foam or plastic foam cushions or sheeting, etc. Any quantities considered. Prompt cash settlement.—Apply Latafix Products, 453c High Road, Wembley. Telephone Wembley 5790 or Arnold 3575. (967)

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Why not see for YOURSELF

MACHINERY FOR SALE

6d. a word, Minimum 12/6 Box 2/-

B.U.S.M. 7ft. No. 8 revolution press, 4-column platen punching or cutting type for sale. Downstroke. Bed 77½in. x 13⅜in. Overall length of top platen 86½in. Stroke approximately 4in. Clearance between bed and platen 16in. Friction clutch. Two cutting blocks. Arranged motor drive 400/440/3/50.—F. J. Edwards Limited, 359 Euston Road, London, N.W.1, or 41 Water Street, Birmingham 3. (993)

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for

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(929)

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(continued)

'COTSWOLD' dipping machines and circulating tanks for latex and PVC. New catalogues now available on request. —Lionel Hook and Sons, Ebley, Stroud, Glos. Tel.: Stonehouse 614/5. (380R)

FOR sale. Approximately 150 steel storage pallets. Condition as new. Size 4ft. cube giving 7in. ground clearance. Can be viewed by appointment.—Box 985. (985)

MANUFACTURERS of roughing machines for rubber sheeting, sponge rubber, splitting machines, leather cloth plant, embossing plates and rollers, spreading machines and presses.—G. L. Murphy Ltd., Imperial Works, Menston, Nr. Leeds. (238R)

600

MODERN ECONOMIC BOILERS

1—COCHRAN 'Sinuflo' double pass, 10ft. 9in. dia. x 15ft. 8in. over tubes; evap. 16,800 to 18,000 lb./hr., 120 p.s.i.; with chimney and i.d. fan.

1—JOHN THOMPSON treble pass, 11ft. dia. by 16ft. over tubes; 14,500/15,000 lb./hr., 120 p.s.i., with i.d. fan.

4—EDWIN DANKS double pass, 9ft. 9in. dia. x 15ft. 6in. over tubes; 12,000 lb./hr., 120 p.s.i., with i.d. fan, chimney, etc.

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1—DANIEL ADAMSON treble pass, 9ft. 9in. x 15ft. dia. x 15ft. 6in. over tubes; 10,000 lb./hr., 160 p.s.i.

Other types of vertical and horizontal boilers always in stock.

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Wood Lane, London, W.12.
(Shepherds Bush 2070)
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(Pudsey 2241)

(989)

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INSTRUCTIONS FOR THE CLASSIFIED ADVERTISEMENTS MUST REACH US BY 10 A.M. WEDNESDAY MORNING OF EACH WEEK

Address Box Number replies to:
Box No. —, RUBBER AND PLASTICS WEEKLY
Maclaren House, 131 Great Suffolk Street, London, S.E.1

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6d. a word, Minimum 12/6 **Box 2/-**

HORIZONTAL type vulcanizing pan, 5ft. dia. x 7ft. long (6ft. long on straight) or nearest, required with quick-lock type door. To operate at 45 p.s.i.g.—Box 988. (988)

WANTED, 4½in. extruder. Good condition. State make and age.—Box 995. (995)

WANTED, for Bombay. Reconditioned or good secondhand. One Banbury 3A, 2 mills 60in., 2 extruders 6in. and 4in., 2 hydraulic presses. All complete with accessories.—Box 994. (994)

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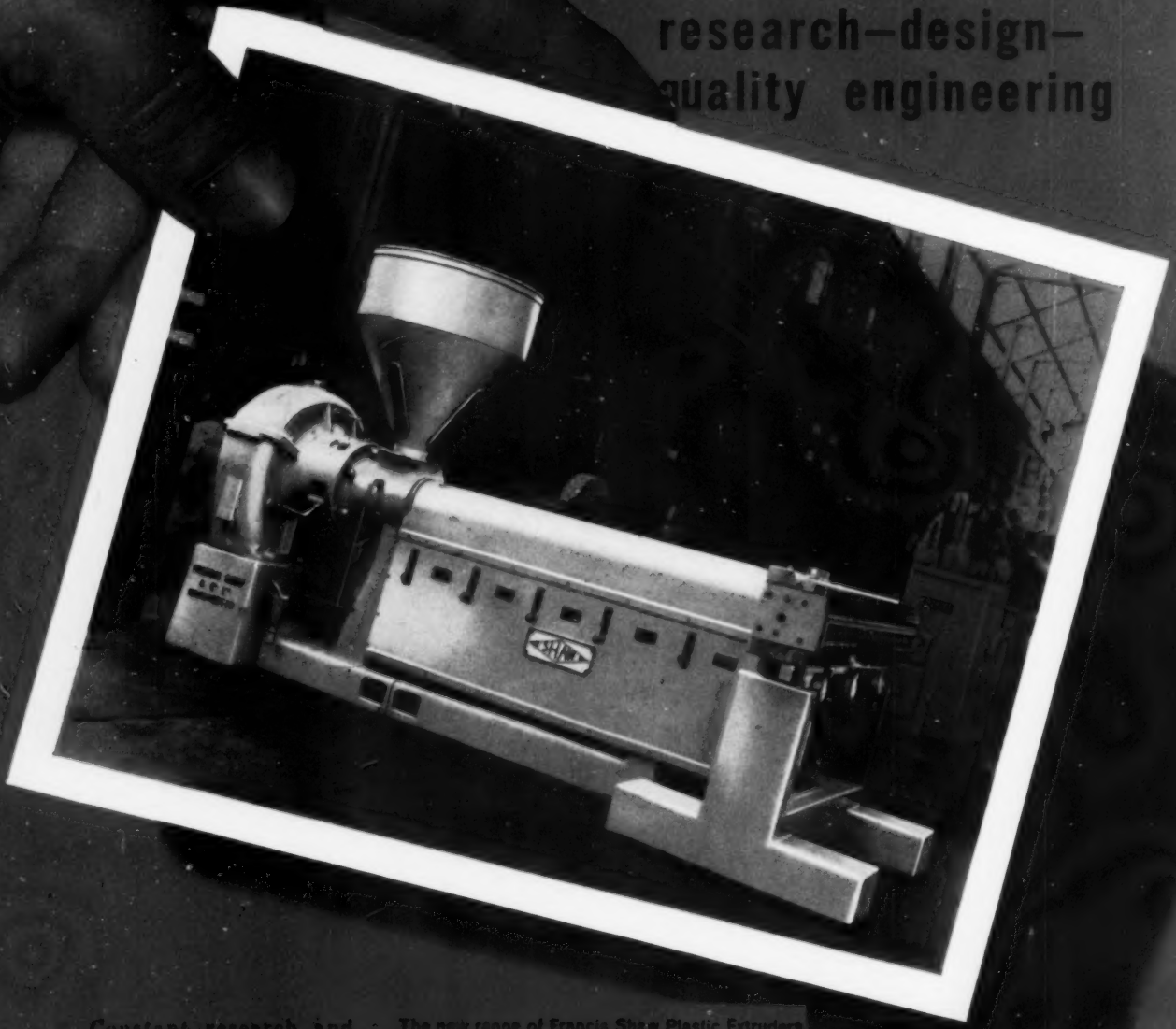

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